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# Unbundling the Great European Recession (2009-2013): Unemployment, Consumption, Investment, Inflation and Current Account<sup>1</sup>

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## Abstract

*The aim of the paper is to unbundle the main economic variables involved in the European Crisis and clarify their reciprocal relationship. The variables considered are: unemployment, inflation, consumptions, investments and current accounts. We use annual, quarterly and monthly data, until 2012, mid-2013 or an estimate of 2013 for the main European countries. The main results are the following: a) we show an emerging European economic divide, b) we detect a quasi-Okun relationship between investment and unemployment, c) we show the revival of the Phillips curve, especially in Germany, d) we test for the relationship between unemployment and the Government deficit, e) we show the existence of a relationship between unemployment and current account, f) we show how countries with high unemployment rate could bear the burden, g) we unbundle the unemployment-current account relationship, showing first the relationship between unemployment and final consumption, h) and then between final consumption, imports and current account, i) we show why a stable and growing inflation differential is not sustainable, but argue that internal devaluation is not an effective policy, pushing inflation rates to a worrisome lower level and even outright deflation, l) we argue and show how to implement a more effective policy looking to the inflation differentials of specific products, looking to the case of Italy, m) we analyze the trade relationship between Germany and China, arguing that since the onset of the EMU and the successive membership of China to the WTO, a European structural break occurred, with some European countries relying much more on exports rather than domestic demand. A more general issue of sustainability and replicability of the Germany's export led growth model is raised.*

**Jel codes:** E24, E29, E30, E31, F32, F40, H62, O52

**Keywords:** Great Recession, Europe, Germany, Unemployment, Inflation, Consumption, Investment, Current Account.

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<sup>1</sup> Appendices are available at the addresses [http://docenti.unicatt.it/ita/luigi\\_campiglio/](http://docenti.unicatt.it/ita/luigi_campiglio/) publications. This paper is part of a research project on the Economic crisis, financed by the Catholic University (D.3.2) 2012.

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[http://docenti.unicatt.it/ita/luigi\\_campiglio/](http://docenti.unicatt.it/ita/luigi_campiglio/) : see the section publications

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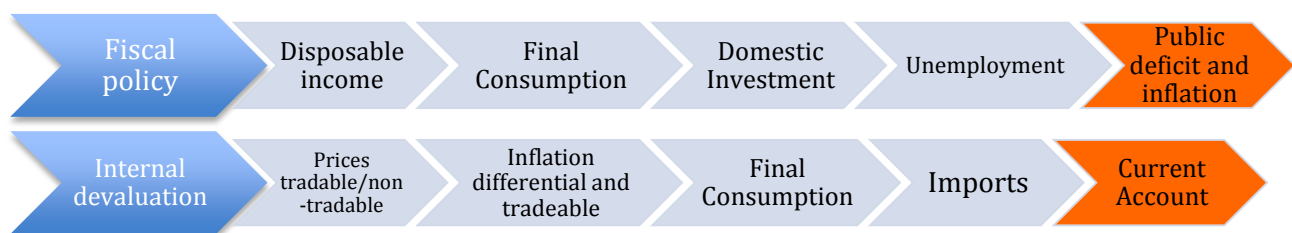
## Introduction.

The Great Recession, stemming from the US, prompted a Sovereign Debt Crisis in the European economies and brought about a double-dip recession, in 2009 and 2012-2013, and therefore a Great European Recession: country inflation rates converged while unemployment diverged, public debt/GDP ratio surged as a consequence of the GDP sharp fall, especially in the Southern European countries. The fiscal measures implemented in the crisis countries of the Euro Area, since 2010, were aimed at two goals: reducing the public debt/GDP ratio and the current account deficit. The two objectives have been pursued with two instruments: fiscal measures to reduce public deficit, by taxes increases and public spending reductions, and internal devaluation, with the purpose of reducing real exchange misalignment and improve competitiveness. The instruments proved successful in turning positive the current account deficits curtailing domestic demand, however at the cost of a steep increase of unemployment rate together with a sharp decline of the inflation rate, well below the ECB target. The austerity has revived an inflation-unemployment relationship which resemble the Phillips' curve, however driven by a sudden and lasting excess supply in the goods market, and as a consequence in the labor market.

### 1. The theoretical framework

We focus our analysis on the relationships between five key endogenous variables - consumption, investments, unemployment, inflation and current account - for the main countries of Euro Area. The exogenous variables are the instruments, fiscal policy and internal devaluation, aimed at the two goals of fiscal and current account deficits. The following picture shows the chain of relationships on which we will center our analysis.

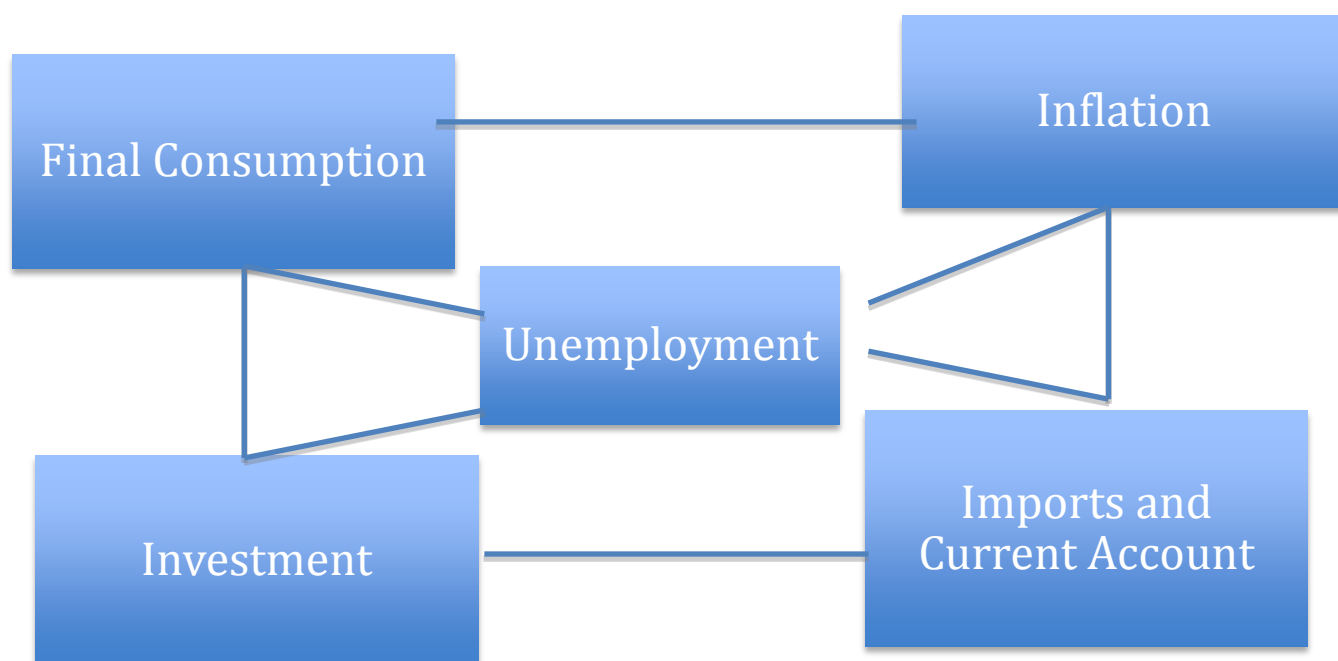
Figure 1



Within the Euro Area the traditional Tinbergen target-instrument approach needs to be supplemented by a Hurwicz decentralized mechanism, which is better suited to highlights the decentralized economic imbalances arising from different countries' fundamentals and decision processes. Indeed the Great European Recession brought about new patterns of behavior and, notably, the comeback of economic divergence. It should be noticed that unemployment is not a primary goal of Euro Area or the European Union and the European Central Bank has instead inflation as a primary goal , in spite of the fact that unemployment is a strong predictor of all the aggregate variables we consider, not to mention its fundamental social value. In fact European economies had to address the well-known problem of achieving simultaneously internal and external balance, with common instruments and goals but quite different economic fundamentals for each country.

Our purpose is to unbundle the main economic relationships among five key endogenous aggregates, and their relationship with the unemployment rate, to understand causes and consequences of the European Crisis. We will therefore analyze each one of the connections among the macroeconomic variables, in aggregate and for the main countries.

Figure 2



## 2. Economic policy and democracy

The Great European Recession arose new and unexpected problems of democratic consensus, because the implementation of fiscal and internal devaluation policies caused a double-dip recession in the countries in which the public deficit and the current account deficit was highest: the main European institutions, like the European Central Bank and the European Commission, came to the forefront of the political debate. The issue of democratic consensus was compounded by the asymmetry of the economic burden in terms of unemployment and standard of living, without a broad political consensus.

The political economy problem in terms of democratic consensus can be better appreciated by looking to the absolute change of the Gross Domestic Product for each country (we exclude Croatia because it entered the European Union since January 2012), together with their population, as shown in table 1, where countries were ranked in ascending order.

<b>Table 1 - GDP 2012-2008 (chain-linked)</b>					
Country	GDP millions (-)	population 2012 (000)	Country	GDP millions (+)	population 2012 (000)
Italy	-86.369	60.821	Estonia	42	1.334
Spain	-54.873	46.818	Malta	166	418
United Kingdom	-47.210	63.495	Slovakia	1.985	5.404
Greece	-41.925	11.123	Belgium	3.493	11.095
Netherlands	-14.059	16.730	Austria	4.092	8.408
Ireland	-9.218	4.583	France	9.614	65.328
Portugal	-8.688	10.542	Sweden	16.404	9.483
Denmark	-7.953	5.581	Poland	36.369	38.538
Finland	-6.404	5.401	Germany	63.840	81.844
Hungary	-5.494	9.932			
Romania	-4.919	20.096			
Slovenia	-2.862	2.055			
Czech Republic	-1.693	10.505			
Latvia	-1.535	2.045			
Lithuania	-1.251	3.004			
Bulgaria	-730	7.327			
Cyprus	-392	862			
Luxembourg	-318	525			
Total (-)	-295.891	281.446	Total (+)	136.005	221.851

Source: Author's calculation from Eurostat database

These data show that the Great Recession and the Sovereign Debt Crisis hit unevenly European countries: the countries with a GDP decrease totalled 56% of the European Union population and recorded a decrease of -296 billion of GDP, while the countries with a GDP increase totalled 44% of the EU population, recording an increase of 136 billions. In other words the European economic policy brought about 2,1 euro of GDP loss in 18 countries for 1 euro of GDP gain in 9 countries: as a result the GDP gap widened. Italy, Spain, U.K. and Greece recorded the highest (absolute) decrease of GDP, while Germany, Poland, Sweden and France recorded the highest increase. Because the economic policy instruments, namely monetary policy and to a large extent also the fiscal policy, are at European level, some form of cost-benefit analysis, and potential redistribution of the common benefits, should have been expected. The loose coordination of the economic policies for the common benefit entails the risk of a drop of democratic consensus for the European project.

### 3. Final Consumption and Investments

The European crisis has been, to a large extent, a domestic crisis: if we sum Final Consumption to Gross Fixed Capital Formation (i.e. Gross Fixed Investments) it is possible to rank countries in relation to this crucial domestic aggregate. Not surprisingly, the countries which recorded the highest (absolute) decrease of GDP were Spain, Italy, Greece and UK, while the countries with the highest increase were Germany, Poland, France and Germany. The comparison of table 1 and 2 shows, implicitly, that the fall of domestic demand was the driving force behind the (second) recession: while the first recession (in 2009) hit alike all European countries the second was the consequence of fiscal consolidation and internal devaluation, and hit unevenly the European countries. In this case the gap between the decreasing and increasing countries was wider: the decreasing countries totalled 56% of the European Union population and a value of -507 billions, while the increasing countries

totalled 44% of population and an increase of +146 billions, which means a loss of 3,5 euro for 1 dollar gain.

**Table 2 - UE Country 2012-2008 (Final Consumption + Gross Fixed Capital Formation)**

Country	Consumption + Fixed Investments millions (-)	population 2012 (000)	countries	Consumption + Fixed Investments millions (+)	population 2012 (000)
Spain	-132.593	46.818	Finland	633	5.401
Italy	-111.000	60.821	Luxembourg	1.032	525
Greece	-64.688	11.123	Belgium	3.593	11.095
U.K.	-62.897	63.495	Austria	6.860	8.408
Ireland	-30.524	4.583	Sweden	16.147	9.483
Netherlands	-23.827	16.730	France	19.307	65.328
Portugal	-21.985	10.542	Poland	22.406	38.538
Romania	-12.985	20.096	Germany	76.103	81.844
Hungary	-11.095	9.932			
Denmark	-8.863	5.581			
Czech Rep.	-5.100	10.505			
Slovenia	-4.699	2.055			
Lithuania	-4.289	3.004			
Bulgaria	-4.288	7.327			
Latvia	-2.906	2.045			
Cyprus	-1.968	862			
Slovakia	-1.744	5.404			
Estonia	-1.212	1.334			
Malta	-37	418			
Total (-)	-506.700	282.675	Total (+)	146.079	220.622

Source: Author's calculation from Eurostat database – (chain linked)

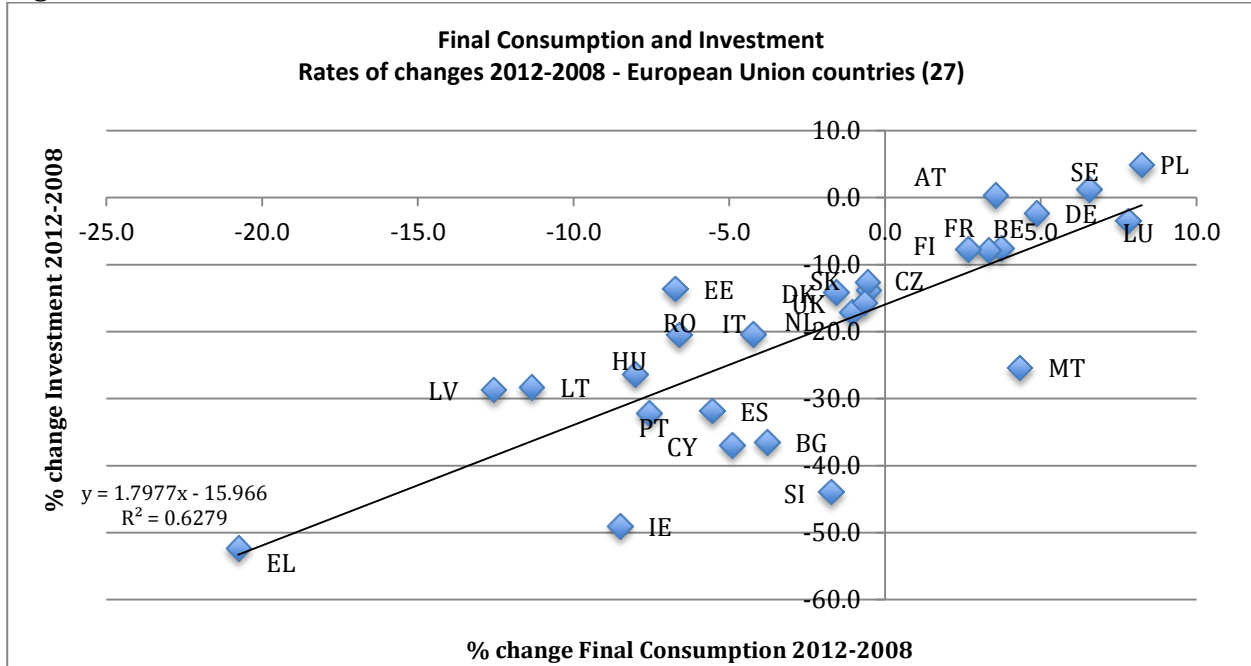
The distinction between Final Consumption and Gross Fixed Capital Formation – Investment for brief - rises the question of the relationship between the two aggregates: according to our approach a fall of Final Consumption should be the cause of a corresponding fall of investments. A cross-section relationship is compatible with this direction of causality: to reduce the possible collinearity between consumption and investments we take the rate of changes of the two variables, from 2008 to 2012, assuming that the direction of causality goes from the consumption to the investment. The cross-section relationship is defined as:

$$\dot{I} = a + b * \dot{C} \quad (1)$$

The plot shows a positive fit: an increase of (chain- linked) final consumption is associated to an increase of investment for the European Union countries (figure 3).

A increasing demand can also come from abroad, balancing the fall of the domestic demand: to check this aspect we take the EU (27) export increase, from 2008 to 2012, and compute the share of the total increase for each country. The result is that, over the period, the bulk of the increase (42%) is concentrated in Germany, followed by The Netherland (13%): therefore export demand played a significant role only for these two countries. Exports has been concentrated in Germany and The Netherland, which are the main channels of spillovers on the other European countries.

Figure 3

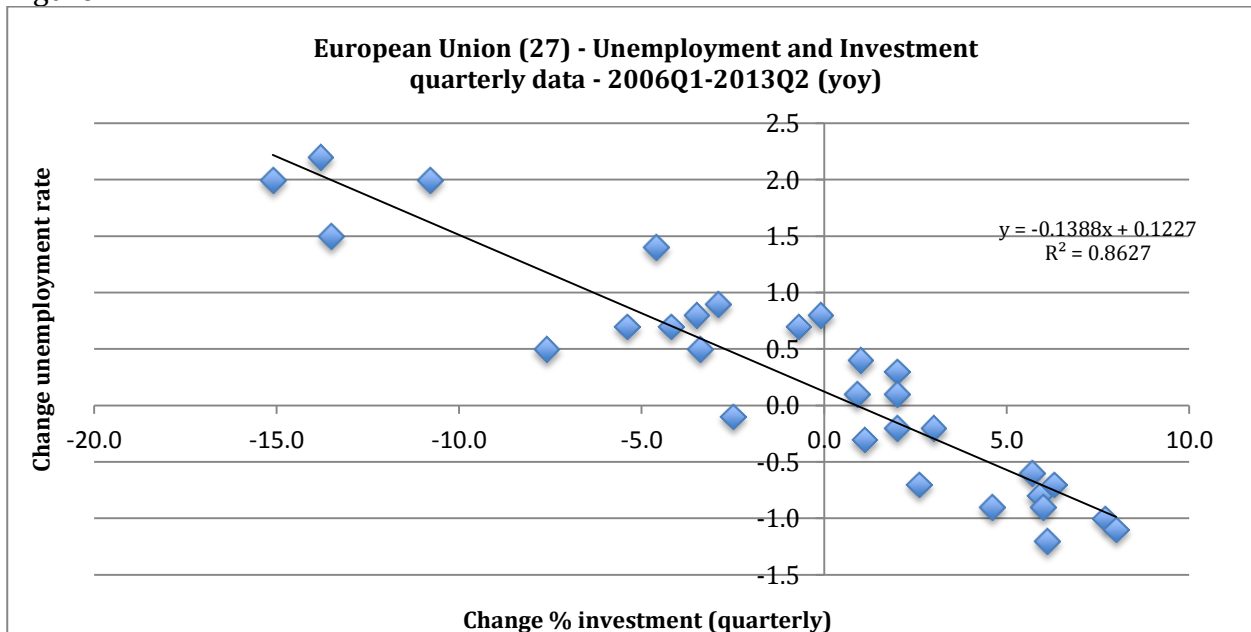


Source: Author's calculation from Eurostat database

To analyze the relationship between investments and unemployment rate we posit the following (quasi-Okun) relationship, measured on quarterly data, from 2006Q1 to 2013Q2 for the European Union (27):

$$U_t - U_{t-4} = f\left(\frac{I_t - I_{t-4}}{I_{t-4}}\right) \quad (2)$$

Figure 4



Source: Author's calculation from Eurostat database



A percentage reduction of investment at quarter  $t$ , against quarter  $(t-4)$ , for example -15,1%, causes an increase of the unemployment rate, equal to  $(U_t - U_{t-4})=2$  points over a year. The quasi-Okun relationship holds quite well for many countries, like Spain, Portugal, Ireland, Poland, Germany, France and Italy. It should not come as a surprise that over this period also a normal Okun relationship holds, with the quarter GDP annual change, both for European Union (27) and the Euro Area (17), and – in some cases in a weaker form – for the above countries.

#### **4. Double-dip recession in Europe and the German Phillips curve**

Economic convergence is the main goal of the European project, because it is a socially valuable outcome and its achievement should allow a closer political integration: however a crucial and perhaps unexpected problem of the Great Recession has been a widening of the economic and social gaps. In fact if we look to the period 2009-2013, we can check a steady increase of the unemployment rate for almost all the European countries, while the inflation rate plunged to a low in 2009 and, again, decreased sharply in 2012. A diverging pattern emerged within the European Union countries (27): the variability of the monthly inflation rates, year-on-year, decreased (measured by the standard deviation) while the unemployment (measured monthly) steadily increased (figure 5).

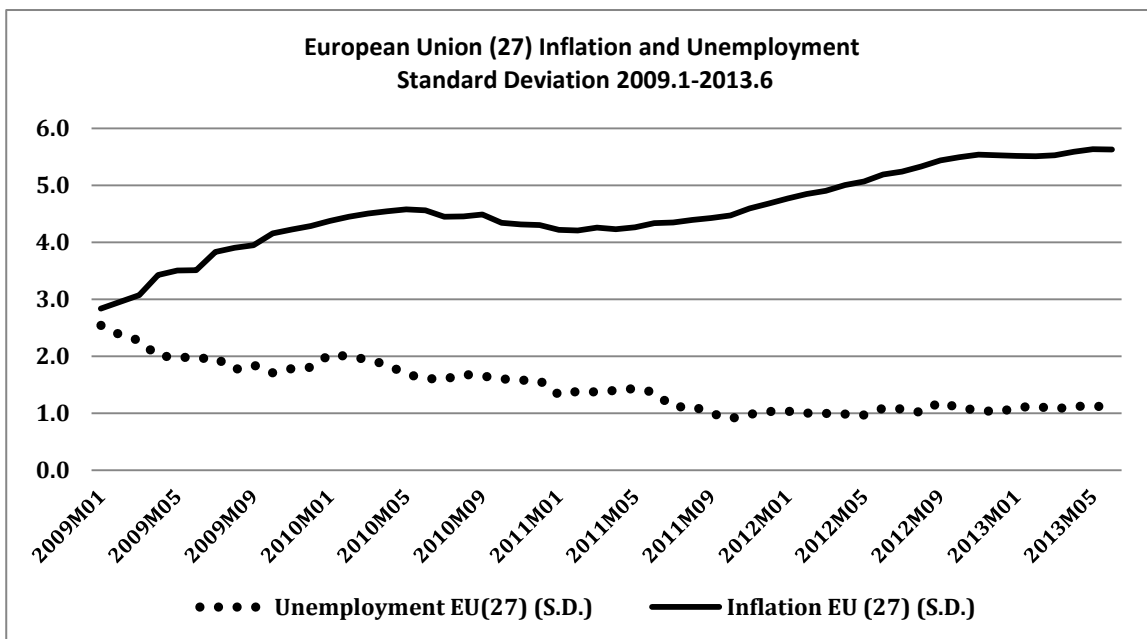
The Great European Recession has also revived the Phillips curve, the empirical regularity between money wages changes and unemployment rate discovered by Phillips (1958), which was given a theoretical foundation by Lipsey (1960) and generalization by Samuelson and Solow (1960) in the form of a short run relationship between inflation and unemployment rate, with an explicit account for expectations in the long run. They suggested also the possibility of “hysteresis”, and, looking to the long run, they argued that “the level of attained growth will be highly correlated with the degree of full employment and high-capacity output”. This insight is close to “Okun law” (1962) analysis of the “Potential GNP” and its relationship with the unemployment rate, which also we proved to be still valid, in relation with investment.

We first analyze the inflation-unemployment relationship during the Great Recession (2009-2012) and then, in the following section, we focus on the period after the fiscal consolidation policies, started in late 2011.

In the longer run (2009-2012) the inflation-unemployment relationship does not exhibit a Phillips behavior: rather it characterizes a double-dip recession, the first in 2009 following the sudden stop after the Lehman default and the second as the consequence on unemployment and inflation of the fiscal consolidation. Figure 6 shows the dynamic of inflation, as a function of unemployment, from January 2009 to September 2013, for the countries of the European Union (27): the best polynomial interpolation is clearly non-linear and of higher order of the one shown in the figure. The aggregate double-dip recession is therefore a mixture of different patterns: Spain, Portugal, Netherlands and Bulgaria are better interpolated by a double-dip pattern, while Italy shows a quadratic and Ireland an inverse quadratic pattern (see Appendix A for a detailed account).

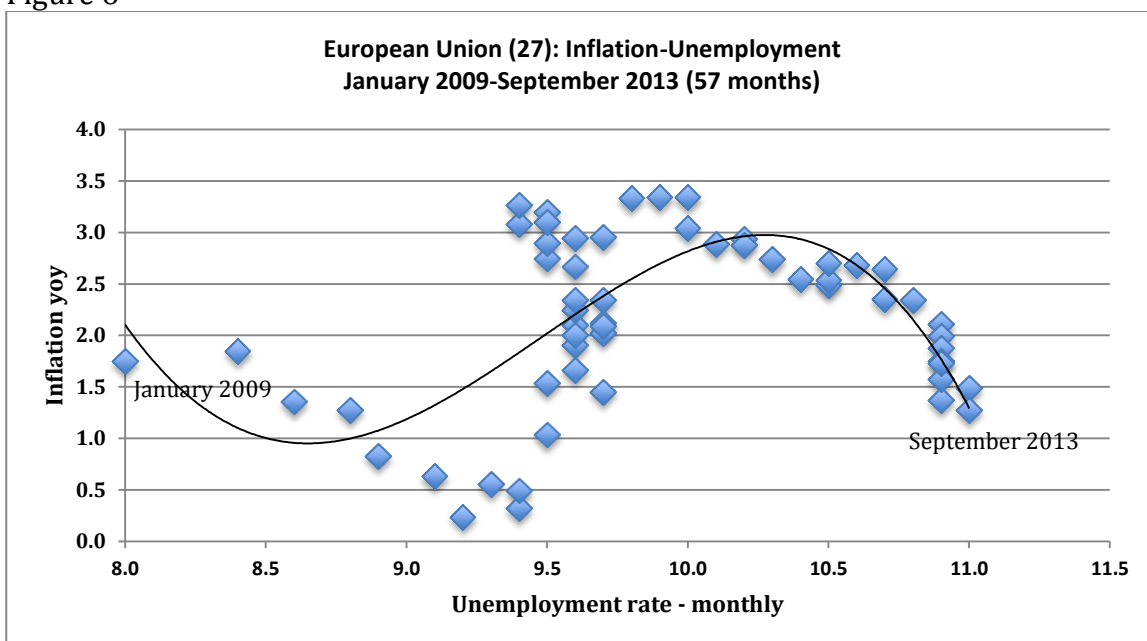
The crucial exception is Germany where a well-defined Phillips curve arises, with the correct inverse clockwise pattern (figure 7): in 2009 welfare state automatic stabilizers (Campiglio, 2013) helped Germany to smooth the economic impact of the crisis and from 2010 onwards unemployment rate gradually reduced, until 5.7% in October 2011 while inflation increased to 2.9%. From October 2011 to September 2013 unemployment rate fell further to 5.2% and, contrary to Phillips normal pattern, inflation decreased furthermore to 1.1%. Indeed, the Phillips curve seems to be a still relevant relationship for the Germany economy, with some appropriate qualifications (Quaas and Klein, 2010).

Figure 5



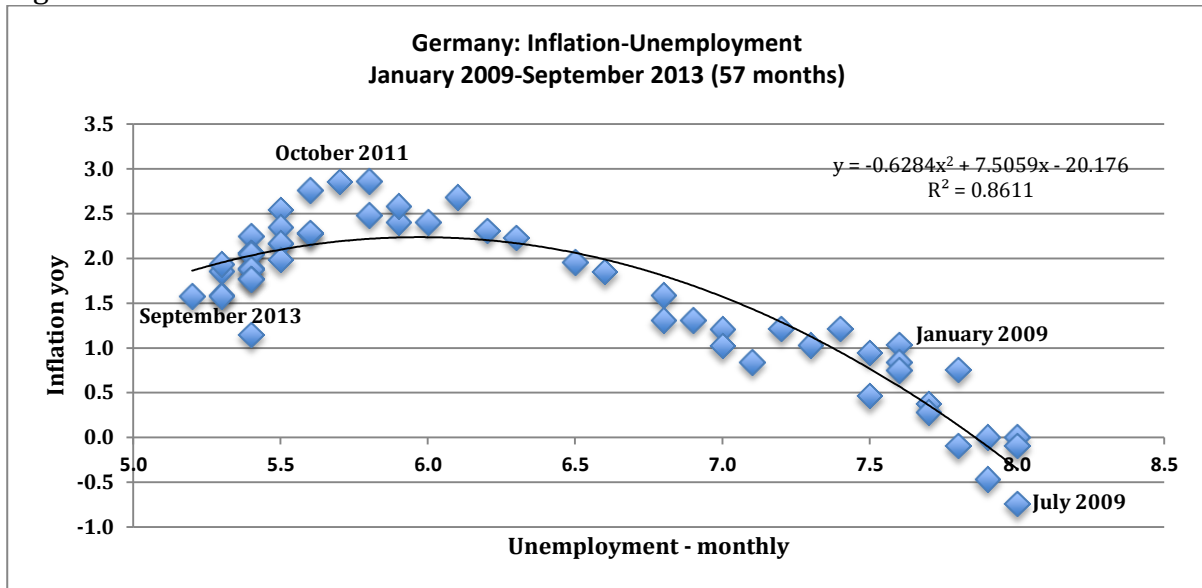
Source: Author's calculation from Eurostat database

Figure 6



Source: Author's calculation from Eurostat database

Figure 7

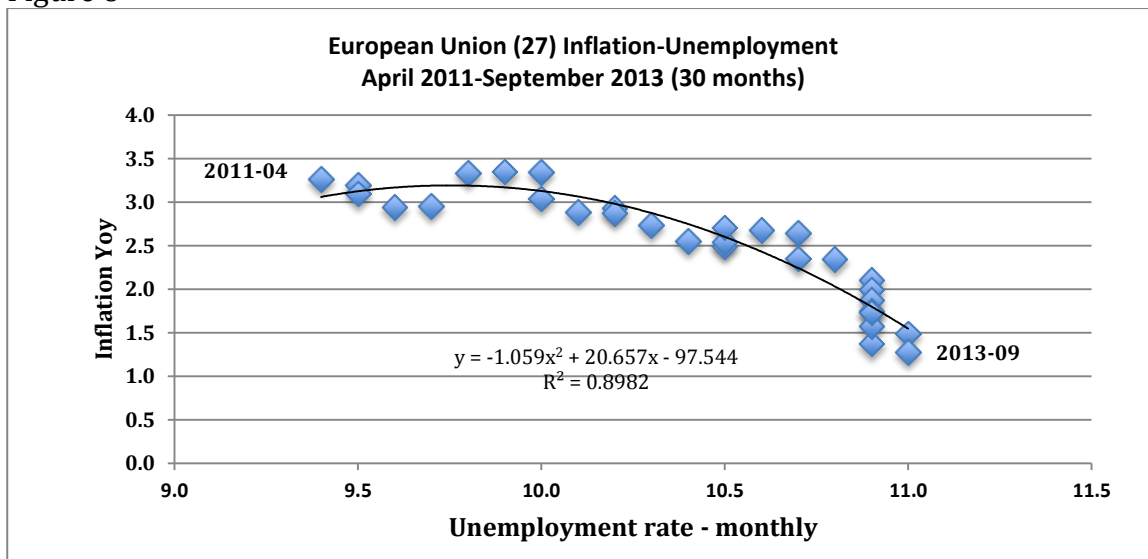


Source: Author's calculation from Eurostat database

### 5. Phillips curve and fiscal consolidation

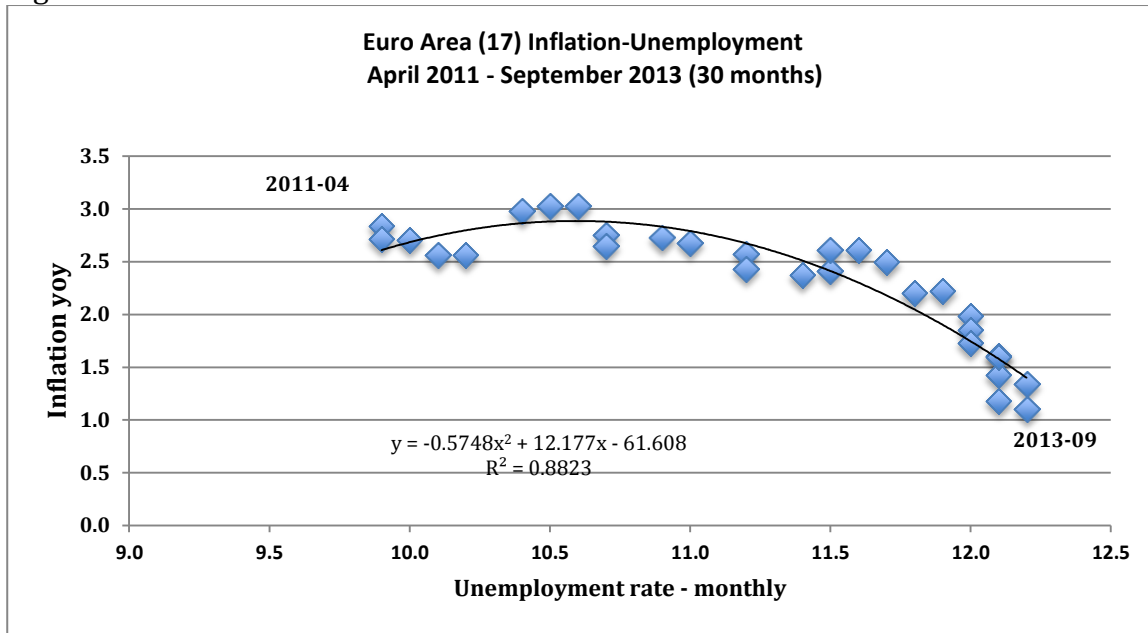
The Sovereign Debt Crisis triggered the European economic crisis when the Greek crisis, acting as a Black Swan, revived the risk premium of Euro Area countries against the German financial assets: in April 2010 Greek public debt was downgraded to the level of junk-bonds and a bailout loan by the IMF was granted, conditional on measures of economic austerity. The financial market turmoil spread from Greece to all the Southern European countries, becoming a systemic crisis and reached a common turning point on October 2011. In October 2011 Moody's announced, and then made official, a rating downgrade of France; in Italy a new government was set up, while in Portugal bonds risk premium was on the rise and the ECB reduced the interest rate. If we look more closely to this period, selecting the dates closest to the relevant turning points (Bellavite Pellegrini, Meoli, Pellegrini, Urga - 2013), a Phillips curve, stemming from the goods market, can be identified.

Figure 8



Source: Author's calculation from Eurostat database

Figure 9



Source: Author's calculation from Eurostat database

In figure 8 and 9 we identify the inflation-unemployment relationship, on a monthly basis, since April 2011 until September 2013 for the Euro Area (17) and the European Union (27), while in the Appendix B we make the same for the main countries. The estimate is of the form:

$$\dot{p}_t = a - b * U_t \quad (3a)$$

$$\dot{p}_t = a + b * U_t - c * U_t^2 \quad (3b)$$

where  $U$  is the unemployment rate and  $\dot{p}_t$  is the rate of inflation (HICP) year on year on a monthly basis  $(\text{Price Index}(t)/\text{Price Index}(t-12) - 1) * 100$ .

The inflation-unemployment relationship is confirmed, with both the analytical specifications, and the following qualifications:

1. the non-linear negative relationship between inflation and unemployment, both for the Euro Area and the European Union, suggests a close interconnection and contagion, from the Euro Area to the European Union.
2. The inflation-unemployment relationship, unlike the traditional Phillips Curve, stems directly from the goods market – rather than the labor market – and the falling inflation is the consequence of the fiscal consolidation and the ensuing fall of disposable income and consumption.
3. from the Appendix B we can check the differences between the European countries: the relationship is linear in Greece since August 2010, as well as France, Portugal, Cyprus since October 2011; it is quadratic in Italy since October 2011 and in Spain since October 2012. In Germany and Ireland the relation between inflation and unemployment is instead positive since October 2011, with a time decreasing unemployment associated with a simultaneous decrease of inflation.
4. the traditional Phillips curve exhibits counterclockwise loops and, with the Samuelson-Solow extension, this should mean an increasing inflation when unemployment decrease and a slower inflation when unemployment increases. We do

not observe clear loops for Greece, Portugal, Cyprus and France but rather a linear relationship, probably because of the short period considered: it is however the direction one would expect in a depressed economy. In Italy we see a half-loop but on the opposite side. In Germany and Ireland we find a remarkable inverse relationship, with inflation and unemployment rates moving in the same direction. In the case of Spain the relationship holds only for the period October 2012-September 2013: for a better understanding we need to revert to the previous longer time-span.

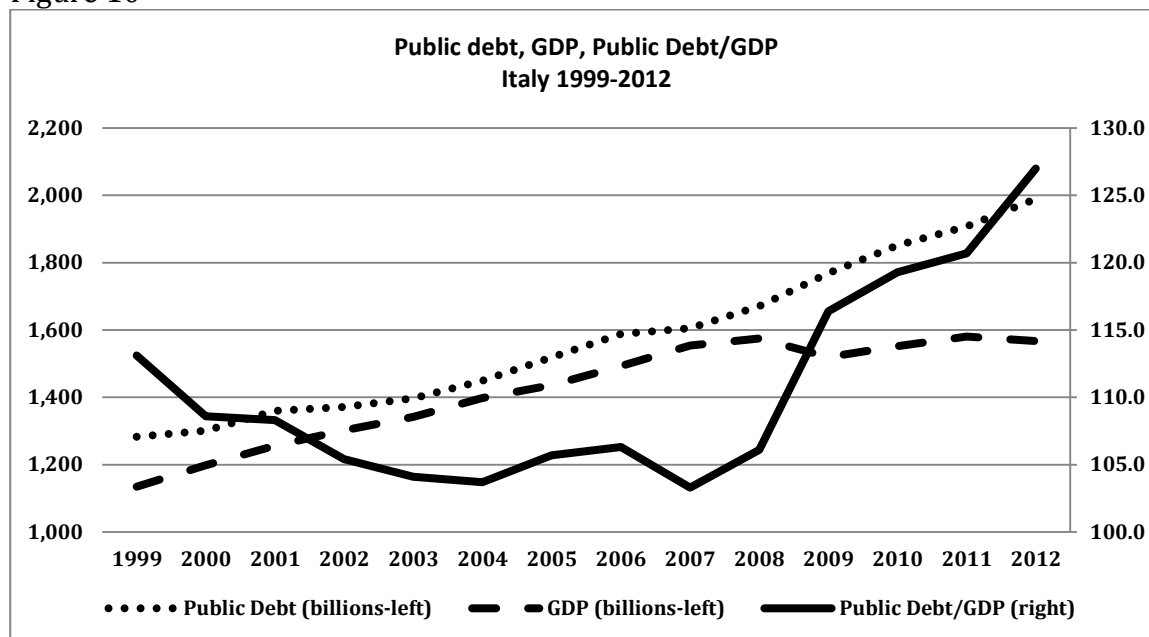
The original Phillips curve relates money wage changes to the unemployment rate, and therefore its dynamic is driven by the labor market and the demand-supply relationship: Samuelson and Solow extension relates price changes to the unemployment rate, and as a consequence its dynamic is instead driven by the good market and its demand-supply relationship. Samuelson and Solow hypothesis becomes relevant within the Clower's insight (1965) about the "dual decision hypothesis": in other words, as a general rule people increase their labor supply "because" they would like to consume more. Generalizing both hypothesis we can argue that the Phillips curve should be reinterpreted as a binding constraint on households' planned expenditures, when disposable income falls below a critical level: when real disposable income declines, because of higher taxes, consumption in the market for goods declines and so the demand for labor by the firms. Steadily increasing unemployment reduces households' disposable income and their consumption, causing overcapacity, slower price increases and, in some cases, an absolute decline.

## **6. Unemployment, public debt and deficit**

The sharp GDP decline caused by the Great Recession increased automatically the Public Debt/GDP ratio: as a major example it is useful to look at the unfolding of the Sovereign Debt Crisis in Italy (figure 10). In 2007 before the onset of the Great Recession the Public Debt/GDP ratio was 103,3: between 2007 and 2012 the nominal GDP increased a meagre 0,8%, while the public debt continued to grow on its trend, increasing 23,9%, and the Public Debt/GDP ratio increased +23% (as a matter of arithmetic). As a counterfactual we can ask which the Public Debt/GDP ratio would have been, should the nominal GDP had grown on its trend since 1999: to make the exercise we simply made a linear interpolation from 1999 to 2007 ( $R^2=0,996$ ) and projected the estimate to the years 2008-2012. Figure 11 shows what the Public Debt/GDP ratio would have been, should the nominal GDP had grown on its trend: the difference from 2008 to 2012 is obviously related to the output gap, a crucial economic concept for the economic policy, whose estimate is however subject to a wide margin of uncertainty (the 8 points increase of the Debt/GDP ratio is a measure of the structural problem related to a potential GDP growing too slow).

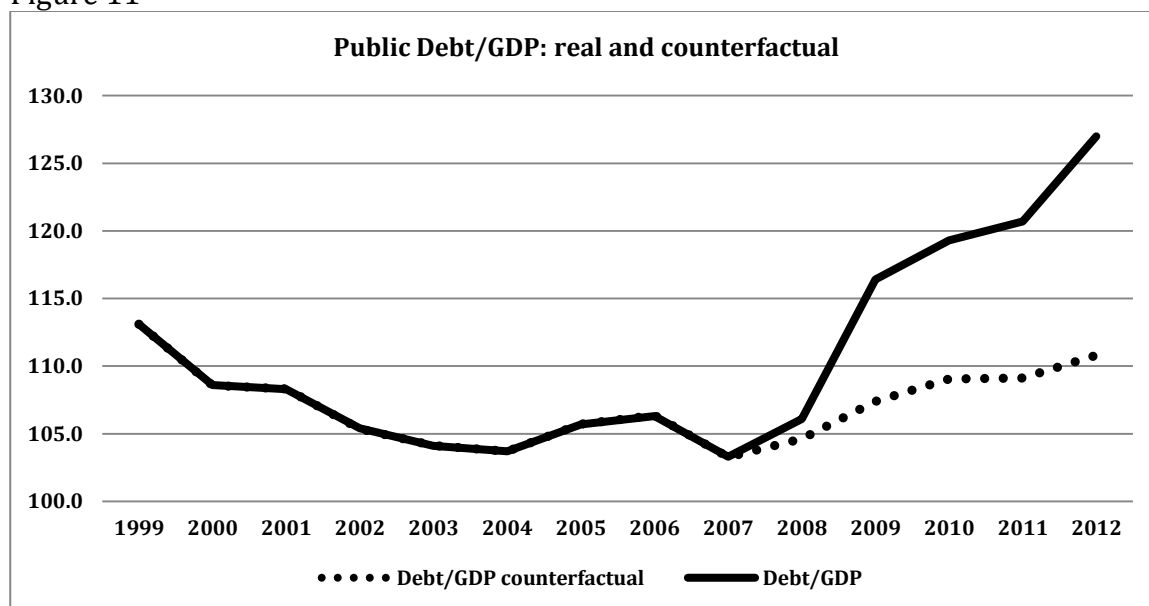
The Public Debt/GDP ratio has been a primary goal of economic policy in all the European countries, however achieved only in Sweden, where also unemployment rate fell: Sweden is the only country in Europe to achieve both goals. For all the other European countries the results are mixed: with the exception of Hungary, the public debt/GDP ratio increased everywhere, but unemployment rate decreased in Germany, Austria, Belgium, Lithuania, Estonia, Latvia, Sweden, Finland and Malta (figure 12). The counterpart of this pattern is a close relationship between the level of government deficit/GDP in 2012 and the change of unemployment rate between from 2009 to 2012 (figure 13 - positive values for the deficit). In 2012 all the European countries recorded a government deficit, with the exception of Germany: in 2012, 16 countries recorded a deficit above the 3% of the GDP, and for 14 countries the unemployment rate was above 10%.

Figure 10



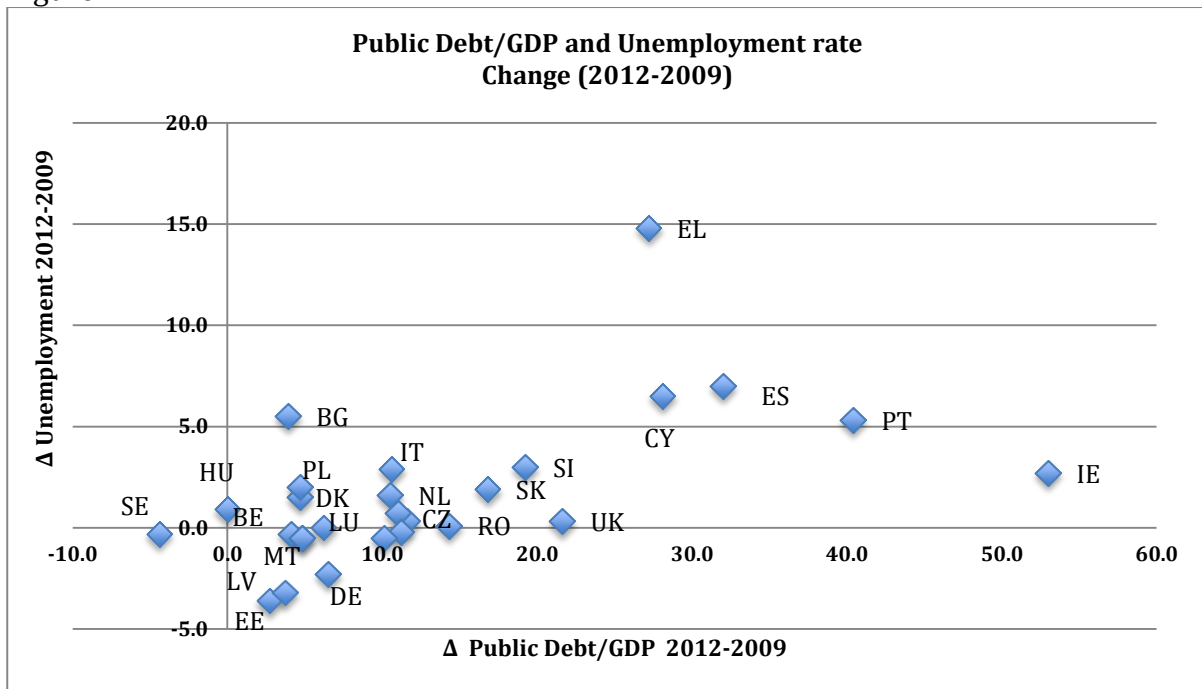
Source: Author's calculation from Eurostat database

Figure 11



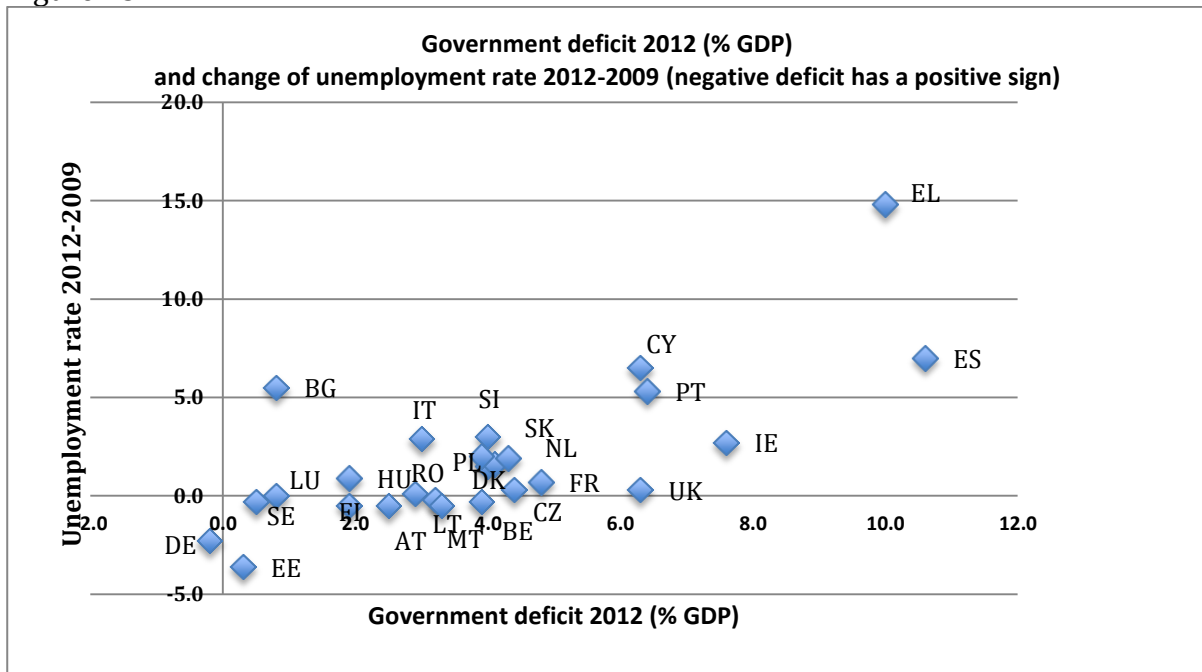
Source: Author's calculation from Eurostat database

Figure 12



Source: Author's calculation from Eurostat database

Figure 13



Source: Author's calculation from Eurostat database

## 7. Unemployment and Current Account

In the US the current account of each single State is not binding for the whole country, while instead it is a constraint for each country of the European Union and the Euro Area: in Europe there are boundaries of power, functions and responsibilities unknown in the US. The question is entangled, because the current account of the Euro Area, as a whole, has a direct impact on the euro exchange rate with the other major currencies and influences the

competitiveness of each countries: at the same time the current account of the Euro Area can be positive while for many countries can be steadily in deficit, raising increasing doubts on the capacity to repay foreign debts, either denominated in euro or other strong currencies. This aspect is clearly at variance with what happens in the US.

Assuming exports are exogenous (the small country hypothesis applies) for each country, the unemployment rate ( $U$ ) drives the final consumption ( $FC$ ), imports decrease and the current account ( $CA$ ): then we should find out a composite function relating the unemployment rate to the current account through the final consumption, via imports, i.e.:

$$CA = f(U) \quad (4)$$

because:

$$IM = g(FC) \quad (5)$$

given:

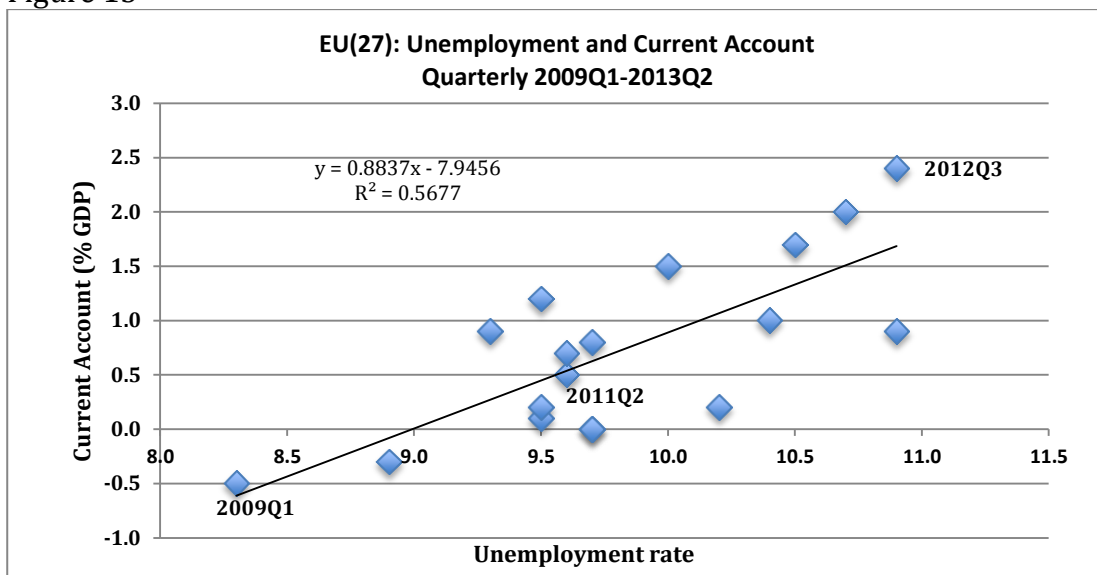
$$CA = \overline{EX} - IM \quad (6)$$

and

$$FC = h(U) \quad (7)$$

First of all we check wheter the final relationship (4) holds, over the period 2009Q1-2013Q2, on the basis of quarterly data. For the European Union (27) a positive relationship arises: the zero balance of the current account is however associated with a high level of unemployment (around 9%). This is happened however in Greece, Portugal, Spain, Italy, and Ireland, during the Great Recession: the unemployment rate associated to zero balance is quite low in Netherland while in Germany no relationship arises.

Figure 15



Source: Author's calculation from Eurostat database

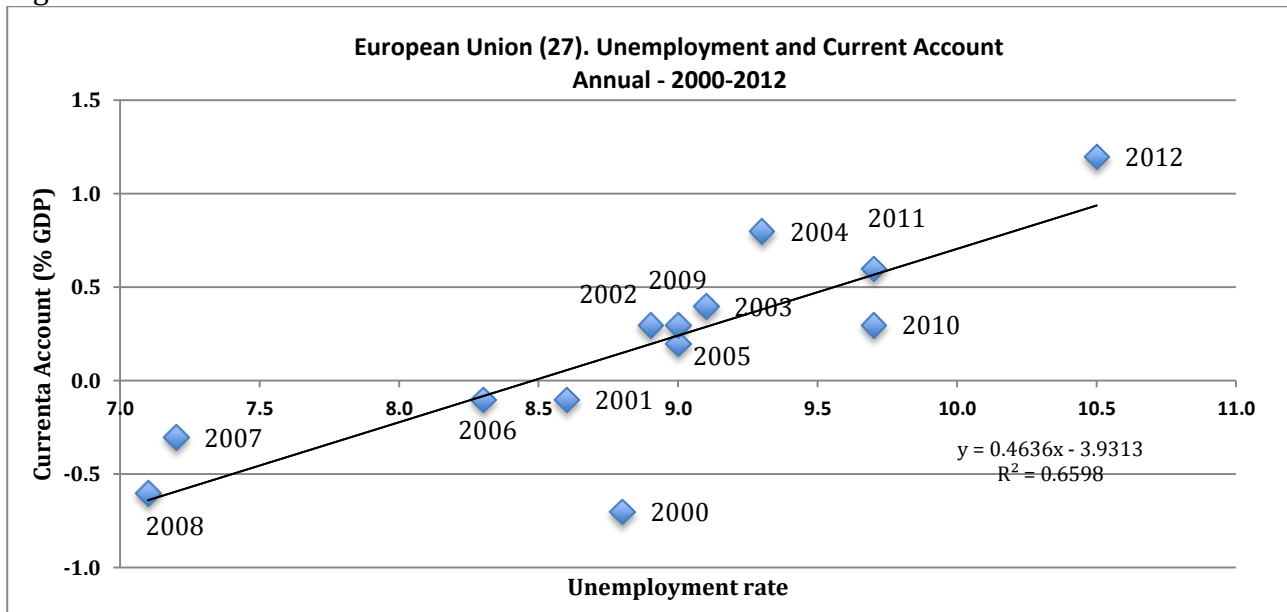
## 7. Unemployment and Current Account in the longer run

The question arises whether the relationship between unemployment and current account, analyzed since the Great Recession, can be generalized to the long term, since the inception of the Euro: the answer is affirmative, allowing further insights on the pattern of the current



adjustment. For the European Union the relationship between unemployment and current account, from 1999 to 2012, is the following (Figure 16):

Figure 16



Source: Author's calculation from Eurostat database

The relationship for the European Union (27) measured on annual data is similar to that computed on quarterly data: the unemployment rate associated to the zero balance of the current account is only slightly lower, 8,5%; the linear fit is good but without no clear time pattern.

However, if we consider the main European countries a number of interesting patterns arise. In Greece, Portugal, Spain the current account balance has been negative since 1999: in all the three countries there was however a sharp improvement in 2012, starting with 2009. The drawback is that the improvement was the result of a dramatic increase of the unemployment rate, reaching 25% for Greece and Spain and 16% in Portugal. Ireland and Italy have recorded a similar pattern. In Ireland the current account balance in 1999 was positive, became moderately negative in 2005 and plunged in 2009, with an immediate recovery in 2010, and an increasingly positive balance since then. In Italy the current account balance started positive in 1999, hovered around zero balance until 2005, became negative from 2008 to 2011, while recovering close the zero balance in 2012. In Italy and Ireland, however, the adjustment process was prompted by an increase of unemployment to more than 10% in Italy and 15% in Ireland. In the case of Italy a counterclock loop also appears. The case of The Netherlands is interesting because this country shows a robust positive relationship between the unemployment rate and the current account: however the current account balance is always positive and the unemployment rate is lowest in 2001 (2,5%) and highest in 2012 (9,4%). For Germany, France and Sweden the relationship between unemployment and current account show no clear pattern, and in the following section we suggest an explanation based on the effectiveness of the schemes of unemployment insurance and, more generally, of the welfare system.

## 8. Unemployment and social insurance

The high level of unemployment rate caused by the fiscal measures in many European countries, the sizable amount of wasted potential output and employment ask the question of their social sustainability: for a better understanding we need to take in account the role of

social protection benefits provided as an insurance against unemployment. If we consider the most recent data available – for the year 2011 – we can make a comparison of the unemployment rate with the unemployment benefits for the small set of countries on which we draw more attention (table 3).

The highest unemployment rate in Spain (21,7%) is associated with the highest share of unemployment benefits (as % of GDP), as well as in the case of Greece and Ireland, where a high unemployment rate is associated with a higher share of unemployment benefits. Ireland stands out as the country with the highest value of euro per inhabitant, followed by Spain, Denmark and France. Italy is the country with the lowest level of unemployment benefits (as a share of GDP), which can be accounted by two main reasons: the high level of shadow economy (21,6% of GDP in 2012)<sup>2</sup> and the highest share of zero of enterprises of class zero (i.e. no paid employee) in Europe<sup>3</sup> (table 2), which include a high share of quasi-employee, for which the unemployment measurement is meaningless.

Table 3

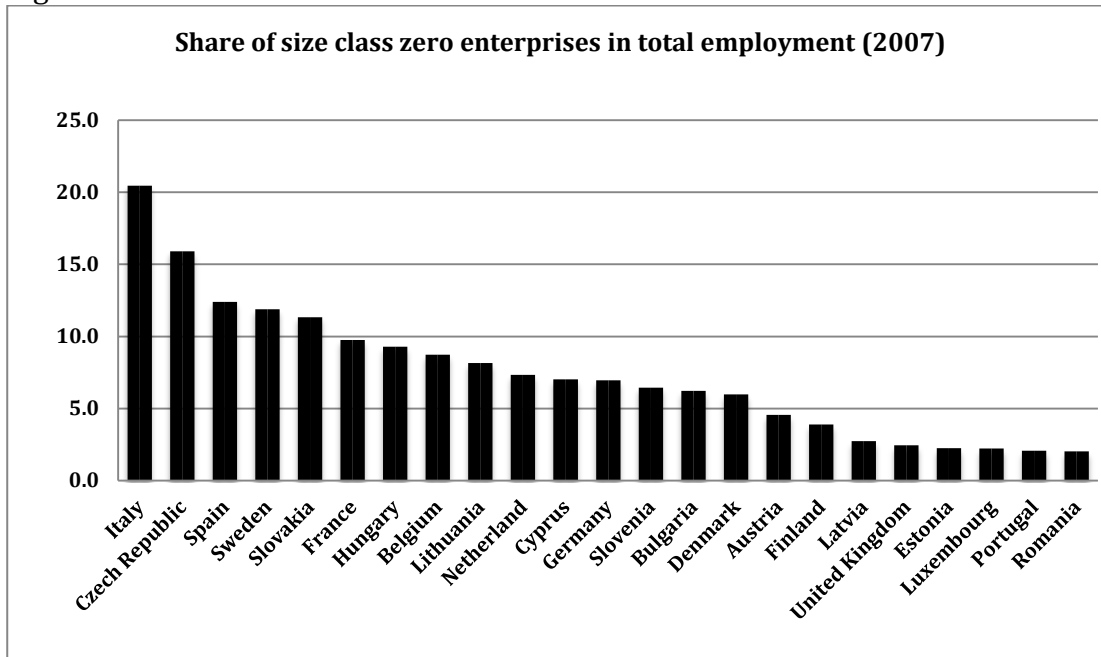
Country/Time	Unemployment rate	Unemployment benefits - % GDP	Euro per inhabitant (constant 2005 prices)	Total Social protection benefits - % GDP
GEO/TIME	2011			
Denmark	7,6	1,8	685	32,8
Germany	5,9	1,3	386	28,3
Ireland	14,7	3,3	1.166	28,3
Greece	17,7	2,1	334	28,9
Spain	21,7	3,7	732	25,6
France	9,6	2,1	588	31,9
Italy	8,4	0,8	187	28,4
Cyprus	7,9	1,2	219	22,4
Netherlands	4,4	1,5	482	30,5
Portugal	12,9	1,4	201	25
Sweden	7,8	1,2	410	29
European Union (27)	9,7	1,6	361	27,8
Euro area (17)	10,1	1,8	468	28,8

Source: Author's calculation from Eurostat database

<sup>2</sup> The estimate of the shadow economy (2012) are 24% in Greece, 19,2% in Spain and 12,7% in Ireland. "Shadow Economy and Undeclared Work", European Commission,

<sup>3</sup> European Commission (2011) "Key figures on European business, with a special feature" Eurostat, p. 19 and statistical annexes

Figure 17



Eurostat (2011) "Key figures on European Business with a special feature on SMEs", European Commission

### 9. Unemployment and Final Consumption Expenditures.

In this section we focus on the relationship between unemployment and final consumption expenditure, as previously defined:

$$FC = h(U) \quad (7')$$

Final consumption expenditures is the sum of three main aggregates: the final consumption expenditures of households, the final consumption expenditures of the government and the NPISH (Non Profit Institutions Serving Households). Focusing on the interaction of households' final consumption and government consumption we can divide European countries in three categories, over the 2012-2008 period:

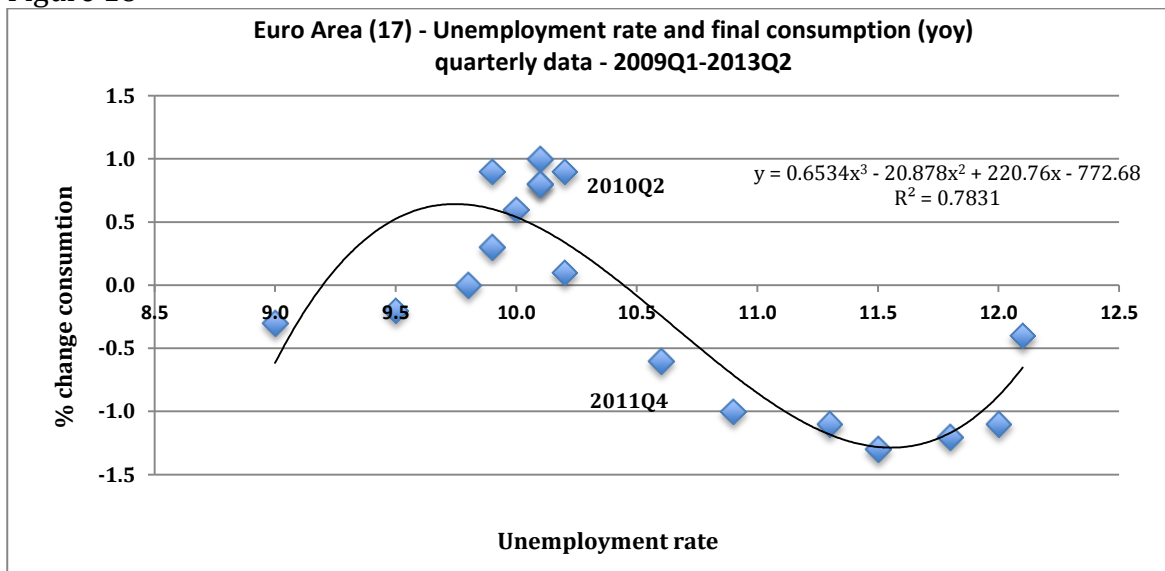
- a) Countries where both household and government consumption expenditures declined: they were Bulgaria, Czech Republic, Ireland, Greece, Spain, Croatia, Italy, Latvia, Lithuania, Hungary, Portugal (11)
- b) countries where both household and government expenditures increased: they were Belgium, Germany, France Luxembourg, Malta, Austria, Poland, Finland, Sweden (9)
- c) countries where the decrease of household consumption was matched by a (lower) government increase, and as a consequence a decrease of Final Consumption: they were Denmark, Estonia, Cyprus, Netherland, Romania, Slovenia, Slovakia, United Kindom. (8)

Therefore the Final Consumption (private and public) decreased in 19 countries, while increased in 8 countries: final consumption of households is around 70% of total Final Consumption in the European Union and therefore it is also the main culprit of the consumption slump in the period, causing a corresponding output and employment reduction. The slump in the 19 countries was the consequence of the fiscal austerity which reduced

households' disposable income, and in 11 countries also the final consumption of the government. In the following we focus on the main aggregate of the Final Consumption in total.

We consider first the unemployment-final consumption relationship for the Euro Area (17), over the period 2009Q1-2013Q2, to analyze its evolution during the Great European Crisis. From the second quarter 2010 the unemployment rate in the Euro Area recorded a decline until the second quarter 2011: the fourth quarter 2011 marks the first impact of the fiscal austerity on the rate of change of the Final Consumption (over the corresponding quarter 2010) which started to decline while the unemployment rate was again on the rise. The best fit is still a non- linear double-dip: we gain a much better understanding of the process looking to the crisis-ridden countries. The fit is linear negative, and improved, if we select Italy (since 2009Q1), Spain (since 2009Q4), Portugal (since 2009Q1), Cyprus (since 2009Q4), Netherlands (since 2009Q1): again Ireland shows instead a positive relationship (see Appendix E)

Figure 18



Source: Author's calculation from Eurostat database

The aggregate data for the Euro Area and the European Union still mask, however, the different impact of the fiscal austerity on the Final Consumption of each country and its weight on the aggregate: to get a clearer picture of the impact of the fiscal measures we make up a more specific comparison, focusing on a sample of major European countries for which we can assess more clearly the starting period of the fiscal austerity (to unbundle the different phases of the Great Crisis it is necessary to reconcile unemployment and consumption with the timing of the policy decisions: see Bellavite Pellegrini, Meoli, Pellegrini, Urga, 2013).

The starting quarter of the austerity period for each major country was selected when the final consumption declined for at least four quarters in a row, while the ending period was the latest available data. The quarterly data selected are values in real volumes, adjusted for seasons and working days and the third column shows the estimates of the consumption decline over the fiscal austerity period. The following columns show the difference in the quarterly consumption – chain linked, base 2005 – between the first quarter of 2008 and the latest available, for the second quarter of 2012. The last column show the difference – annual data from 2008 until 2012, of the Final Consumption for the Euro Area countries, also in real volumes.

Table 4

Country	Fiscal Austerity Starting quarter	Fiscal Austerity Latest quarter	Fiscal austerity $\Delta\%$ real consumption	Great Crisis $\Delta$ real consumption 2013-2 (-) 2008-1 (millions euro qtly )	Great Crisis $\Delta$ real consumption 2012-2008 (millions euro-year)
Italy	2011-3	2013-2	-5,8	-18.557	-48.987
Spain	2011-2	2013-2	-6,5	-15.662	-41.870
Portugal	2011-1	2013-2	-11,3	-3.249	-10.594
Ireland	2009-1	2013-2	-8,8	-3.198	- 9.725
Greece	2010-1	2011-1	-10,0	-3.312	-39.342
Cyprus	2012-2	2013-2	-7,1	-260	- 675
Netherland	2011-2	2013-2	-3,1	-1.967	- 4.177
Germany				26.920	86.214
France				15.112	48.141
Belgium				2.752	8.849
Austria				2.018	6.686
Total				601	5.480

Source: Author's calculation from Eurostat database. Greek data are unavailable after 2011-1.

The quarterly data for Greece are available only until the first quarter of 2011. Quarterly data and annual data are not strictly comparable because of the time pattern and the statistical adjustments for the quarterly data.

The table shows clearly the wide differences within the Euro Area and allows a different perspective on the two periods: Italy has been the country with the sharpest absolute value of final consumption decline, both annually and quarterly, while Spain was only slightly below. Greece, Portugal and Cyprus recorded the sharpest relative decline: Netherland joined the group of the countries with consumption decline, even if with a smaller relative and absolute impact. The Euro Area, however, was not homogenous: Germany and France, and also Belgium and Austria with a lower volume, recorded a significant increase of final consumption over the entire period of the Great Crisis, from 1998 to 2012. The divergent patten of consumption is coherent with the increasing variability of the unemployment rate inside the Euro Area and the European Union (figure 5): increasing unemployment rate entails a decrease of final consumption (as a percentage of the previous year) on a quarterly basis for Italy, Spain, Portugal, Cyprus, and Netherland. In the case of Ireland the relationship is instead positive, i.e. an increasing unemployment rate is associated with a slowing decrease of consumption: the high unemployment benefit in Ireland, given a high involuntary unemployment, seems a plausible explanation for this pattern. We should expect, however, that the average consumption level has a lower bound and cannot continue for ever.

### 10. Final Consumption, Imports and Current Account

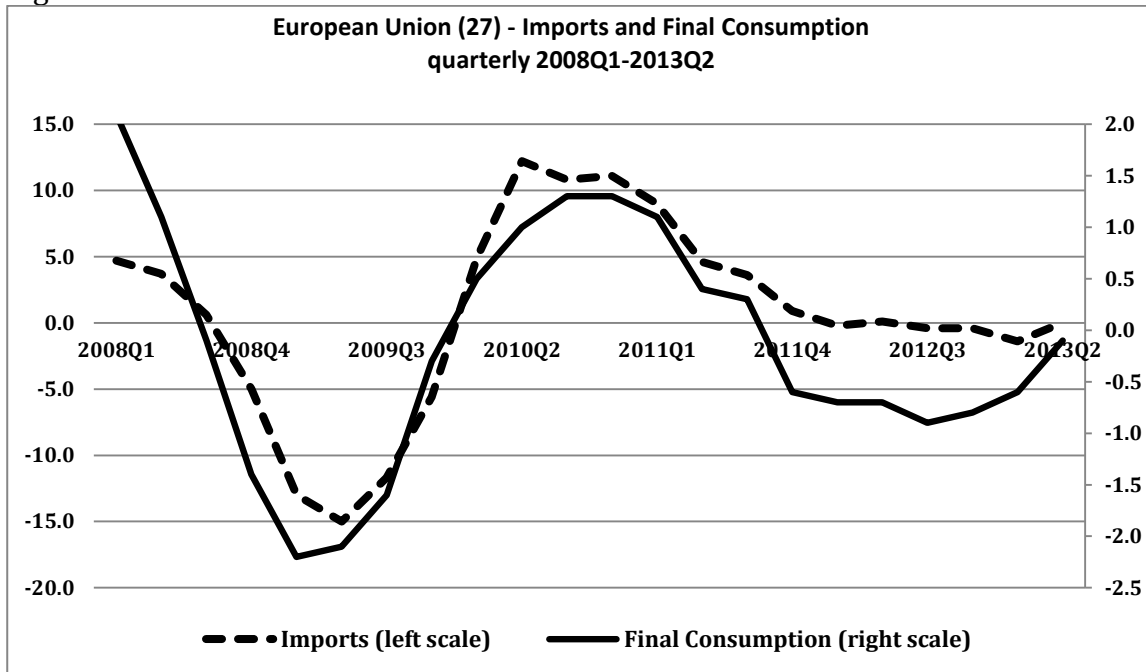
The slump of domestic final consumption for the aforementioned countries brought about an improvement of the current account by shrinking import: exports recorded a low, but positive rate of growth and by the end of 2013 the current account balance improved and became positive.

$$IM = g(FC) \quad (5')$$

We check the relationship Imports-Final Consumption for the European Union (27), which shows up more clearly on a time scale (taking care of a possible non coincident x axis): final consumption and imports growth rates took a simultaneous and sharp decline from 2011Q2, final consumption decreased in a row since 2011Q4 until 2013Q2, while imports declined from 2012Q1 to 2013Q2. Imports' decline began in Spain and Portugal since 2010Q2,

followed by Italy in 2010Q4 and France in 2011Q1, closely associated with a corresponding decline of final consumption: final consumption declined continuously from 2011Q2 in Spain, 2011Q1 in Portugal, 2011Q3 in Italy. A profile of double-dip recession arises, with different amplitude, for all these countries: economic crisis spread from Greece, to Spain and Portugal, to Italy and, to a minor extent, to France.

Figure 19



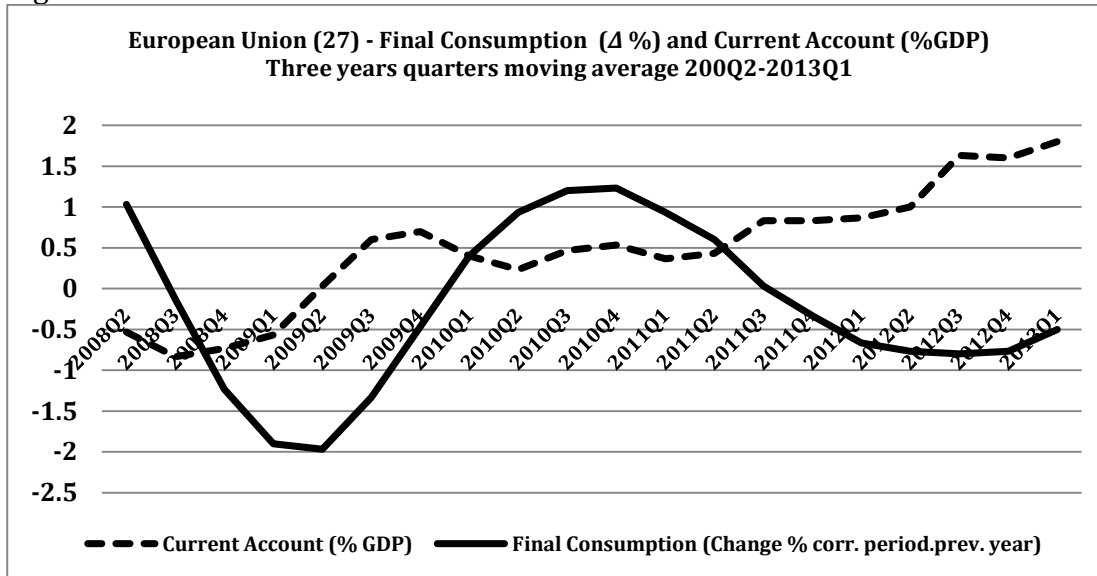
Source: Author's calculation from Eurostat database

The extension of the imports-final consumption relationship to the current account-final consumption at the level of European Union requires the small country assumption for the countries' export, with the only exception of Germany: a small country has no market power in the international trade, as it happens with the Germany's export of cars in China. We analyze the relationship between the current account balance and the rates of change of the final consumption (over the corresponding period of the previous year) for the European Union: for each variable we take a three quarters moving average, therefore omitting the first and last quarters in the comparison of the two series, over the period from 2008Q1 to 2013Q3. Final consumption quarterly changes, year on year, have a clear impact on the current account of the European Union, which was slightly in deficit from 2008Q2 until 2009Q2 and afterwards went positive and increasing, as a share of GDP. Final consumption changes fell sharply since 2010Q4 and became negative since 2012Q1: correspondingly the current account surplus increased, reaching a maximum at the end of the period considered (figure 20).

Italy and Spain were key for the aggregate dynamic of the European Union, because of their economic weight and their wide swings. In Italy the final consumption fell since 2010Q4 and became negative since 2011Q3 and continued its downward trend afterward: the current account deficit followed suit, becoming rapidly positive. In Spain the reverse of the current account was more dramatic, starting from around 10% of the GDP at the beginning of 2008 and turning positive in the second quarter of 2012: the counterpart was a steady decline of final consumption for the entire period 2008Q1-2013Q3, except for 3 quarters. The case of Portugal is a mixture of the patterns in Italy and Spain: it started from an even higher current account deficit at the beginning of the period, the final consumption showed a double-dip

becoming (again) negative in 2011Q1 and the current account reached the balance at the beginning of 2013. It is worth considering the parallel experience of France and Germany: France recorded a slight decrease of final consumption only in the fourth quarters of 2011 and the first quarter of 2012, while the current account deficit remained negative but stable: in Germany the final consumption was steadily increasing, except for one quarter: the current account was positive at a high level (as a share of GDP) and from the 5,8% in 2011Q2 increased to 7,2% in 2013Q1 (moving average values) (see Appendix F).

Figure 20



Source: Author's calculation from Eurostat database

### 11. Internal devaluation and inflation rates differentials

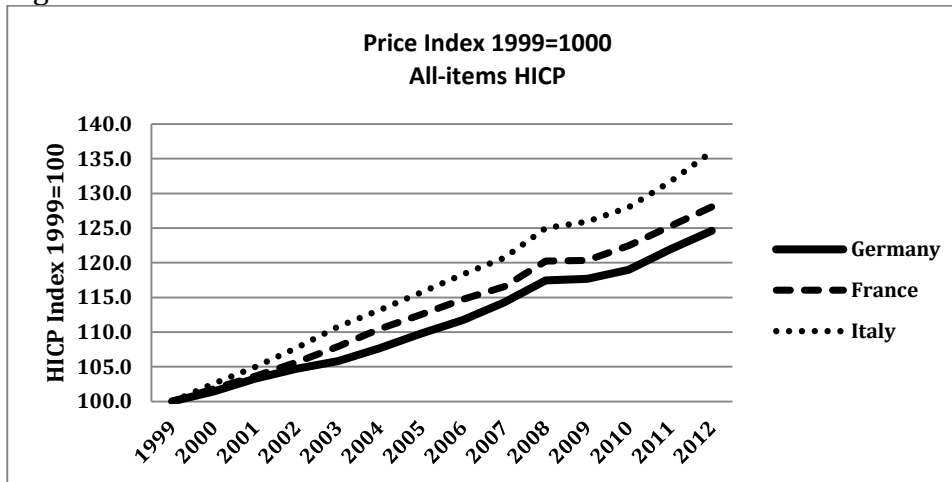
The convergence of “prices and quantities” among the European countries is the main economic and political goal: a steady divergence of inflation between countries with a common currency cannot be sustained in the long run, because it is the cause of structural imbalances which need to be removed. Inside the member of the Euro Area the key magnitude becomes the real effective exchange rate (REER), which, for two countries, can be reduced to the bilateral difference of the inflation rates:

$$q = \dot{p}_I - \dot{p}_G \quad (8)$$

The real Italian/Germany exchange rate can be defined as the ratio between the Italian and the German price level of a given basket (depending on which is the foreign country), while (in our notation) the real change is the difference between the Italian and the German inflation rates. If the inflation rate in Italy is higher than the inflation rate in Germany, say +10%, a given basket will cost 10% more to the Italian consumers and the real exchange rate will increase +10%, that is a real exchange depreciation for the Italian Euro. On the other side the German people going to Italy on vacation should find out that goods and services are 10% less expensive than in Germany, a real appreciation. If we start with the same wage level, a 10% inflation gap would give to the German workers a larger purchasing power. Indeed the hourly wage levels in Germany are already higher than in Italy: in 2012 the hourly labour cost were 35,4 euro in Germany industry (27,3 in Italy), 24,7 in construction (25,6 in Italy) and 28,4 in services (27,3 in Italy). Because for a consumer a lower price is better than a higher price, for the same good, we should expect a correction through some form of competition or arbitrage, as it happens when on vacation or with cross-border shopping. A common currency

area is optimal if arbitrage is allowed and feasible for goods, labor and capital: to achieve this goal appropriate rules and institutions are required, but unfortunately they are still incomplete in the Euro Area, where the issue is now vital because its members gave up the instrument of external devaluation, and is anyway crucial for the other European Union countries, which can still retain the instrument.

Figure 21



Source: Author's calculation from Eurostat database

As an example for the goods markets we compare the price index of Italy and France, with Germany as a benchmark, because its inflation rate has been the lowest in the period 1999-2012. Italy's rate of inflation was always higher with respect to Germany (except in 2007): France had also a higher rate of inflation with respect to Germany (except 2001, 2007 and 2009) but always lower with respect to Italy (except 2010). As a consequence, between 1999 and 2012 inflation increased +24,6% in Germany, +28% in France and +36% in Italy (figure 21): on average +1% each year, considering Italy versus Germany, and +0,7% taking Italy versus France. The long term consequence of a steady inflation divergence is a growing loss of Italy's competitiveness, implying an increasing real exchange rate, and an increasing current account deficit: while external depreciation is the instrument to restore the balance of the current account with a system a floating exchange rate, with a common currency a possible instrument is the internal devaluation, which implies an array of changes, like freezing wages and salaries, removing indexation or a straightforward reduction of wages and prices.

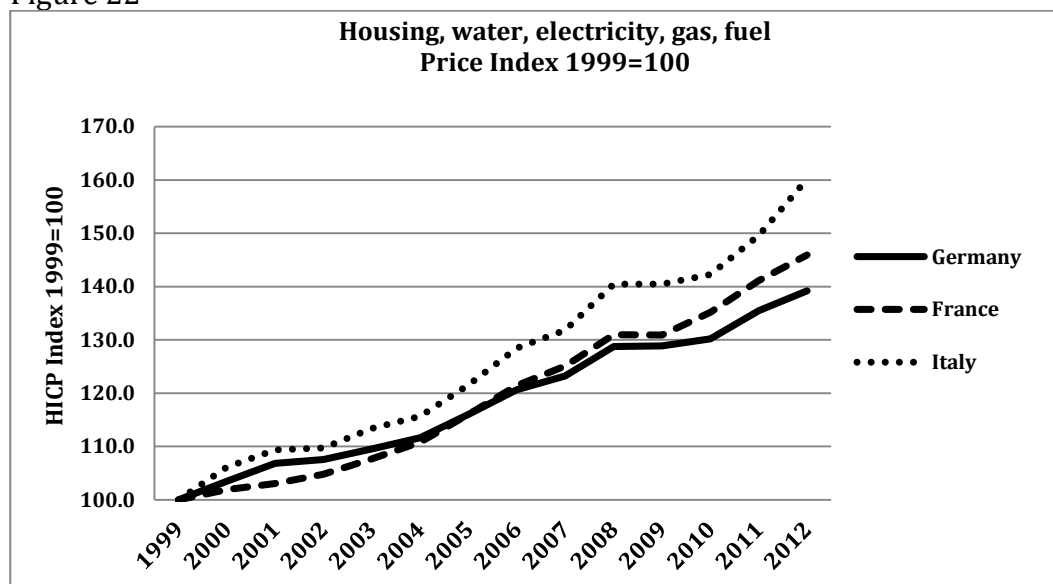
Relying on the instrument of internal devaluation the IMF makes two specific policy recommendation: "(1) a fall in the price of non tradable goods relative to tradable goods to help reorient domestic production towards tradable; and (2) a decline in the price of domestic tradable goods relative to foreign tradable goods to help boost external competitiveness and exports. In other words, a relative price adjustment with respect to trading partner would bolster the competitiveness of the external sector (external balance), while the reallocation of resources from the non tradable to the stronger tradable sectors would stimulate the overall economy to help it to reach full employment (internal balance)" (IMF, World Economic Outlook, October 2013, p. 45). Indeed, since the pioneering analysis by Swan (1955) and Salter (1959), external devaluation (expenditure switching) can be an effective instrument to bring back to balance the current account only if it is well coupled with an "absorption" policy (expenditure-changing), i.e. a demand reduction which can be accomplished through a tightening of fiscal and monetary policy. The appropriate balance between the two instruments is crucial to achieve both internal and external balance: however, as Salter



already pointed many years ago, with the internal devaluation the adjustment process would be “painful” and correspondingly high the chance of settling down in the “unhappy” situation of high unemployment (like Spain or Italy), for an exceedingly long period, and an inflation rate which is “too” low, trying to catch up and overdo the already low inflation in Germany. A currency union, in which the current account of each country matters, requires a long run convergence of inflation rates: however this could prove to be a structural problem for countries with a low GDP per capita, needing to converge at a faster speed of GDP and a higher rate of inflation. In the short run the reduction of the inflation gap with respect to Germany is on this way since the summer 2013 in Italy, after a prolonged contraction in consumption, while it is close to zero in Portugal, Ireland, Spain and records an outright deflation in Greece: in fact the European price index measure prices at their nominal value and does not take account of recurring on and off discounts, except for the seasonal: therefore the discounted price inflation at the end of 2013 is probably negative also for the other countries.

Krugman (2012) suggests three fixes, in an attempt of not wasting the European Union project: Europe-wide backing of banks, the ECB as lender of last resort and a higher inflation target; for countries like Italy and Spain, in the light of the previous analysis, we suggest also an industrial and competitive policy aimed at removing inefficiencies, rather than cutting wages and purchasing power. The previous comparison between Italy and Germany, extended to the main subcategories of individual consumption by purpose (COICOP), allows a better understanding of the wide scope of an industrial policy. We consider first a subcategory which can be broadly classified as non tradeable, i.e. expenditure for housing, water, electricity, gas and other fuel, whose share of households consumers’ expenditures is 24% in Germany and 11% in Italy. Inflation between 1999 and 2012 was +39% in Germany and +60% in Italy, therefore widening the inflationary gap from 11 point to 21 points (Figure 22)

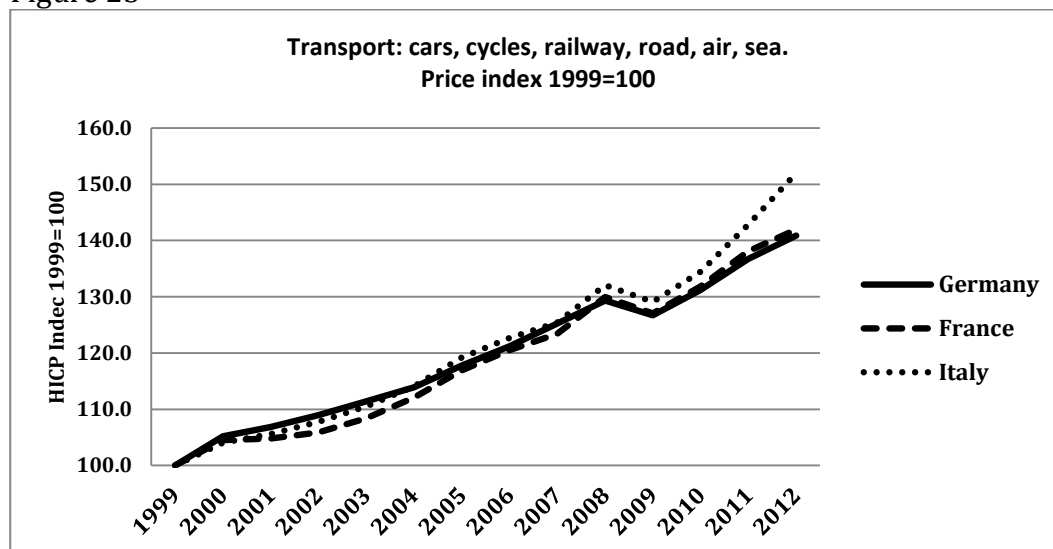
Figure 22



Source: Author’s calculation from Eurostat database

If we consider, to the opposite, a category which can be broadly called as tradeable, i.e. the category of transport, which is made up of purchase of vehicles, motor cars, motor cycle, spare parts, fuel, maintenance, transport by railway, road, air and sea, the inflationary gap Italy-Germany shrinks to 10 points in 2012, while until 2010 is the same as France and Germany (Figure 23). The share of transport is 16% of total households expenditures in Italy, 17% in France and 14% in Germany,

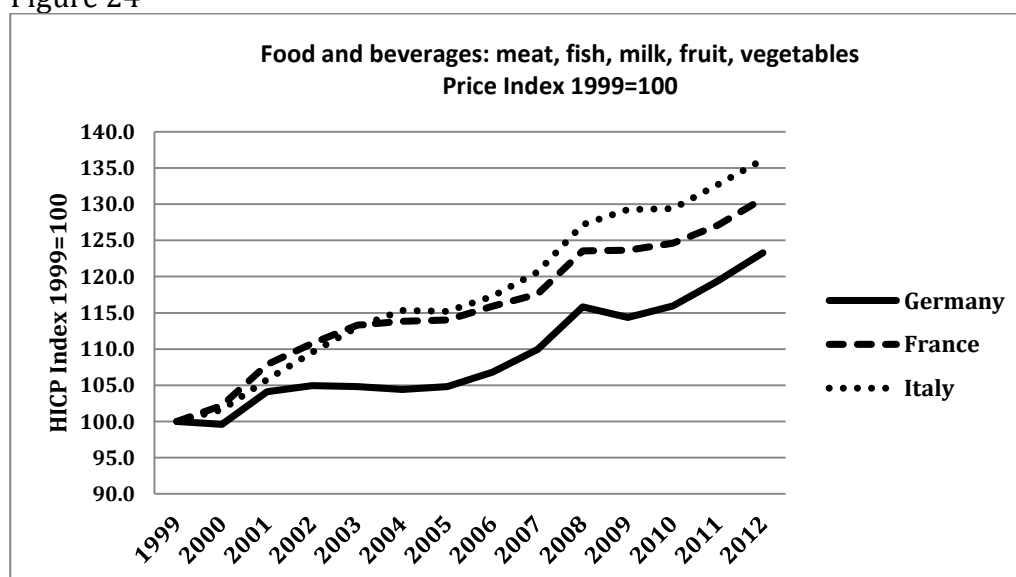
Figure 23



Source: Author's calculation from Eurostat database

The third group is made up of quasi-tradable goods, under the heading of food and non-alcoholic beverages (bread, meat, fish, milk, oils, fruit, vegetables, sugar): “quasi” because the goods are perishable and the opportunity of export are therefore more limited, but still possible with low cost of rapid transport. The share of food and non-alcoholic beverages is 17% of total households expenditures in Italy, 16% in France and 12% in Germany, while the inflationary gap between Italy and Germany is 13 points, the same as the average. It seems therefore that, rather than prompting a deflation on purchasing power and consumption, it is possible: a) to modify relative prices improving efficiency in the goods market, targeting the construction sector, to avoid booms and bust, like in Spain and Ireland, with the consequence of rising rents and b) shortening the goods supply chain, like food, delivered domestically and exported to the closer countries, because the longer is the chain the higher is the inflation multiplier.

Figure 24

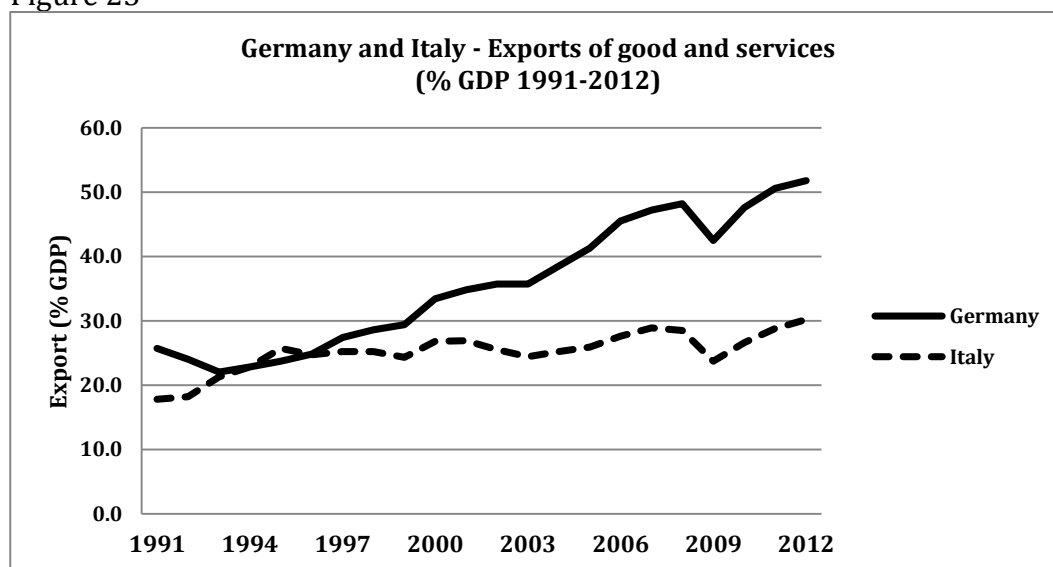


Source: Author's calculation from Eurostat database

## 12. The Germany-China Syndrome: Dissecting Germany's international trade.

The growing current account surplus of Germany has been analyzed by few contributions, aimed at explaining the underlying causes and consequences on other EU members: an interesting result (Kollman et al. 2013) using a DSGE model is the high elasticity of substitution between domestic and imported products (3.0) in Germany, which can help to explain the diverging pattern of the sharp increase of exports with China, while the trade balance has been positive only in the most recent years. The Germany's economic imbalance in Europe is causing concerns also in the US, where the Department of Treasury has pointed out that "Germany has maintained a large current account surplus throughout the euro financial crisis, and in 2012, Germany's nominal current account surplus was larger than that of China" and as consequence "The net result has been a deflationary bias for the euro area, as well as for the world economy" (2013, p. 25). It was not always this way.

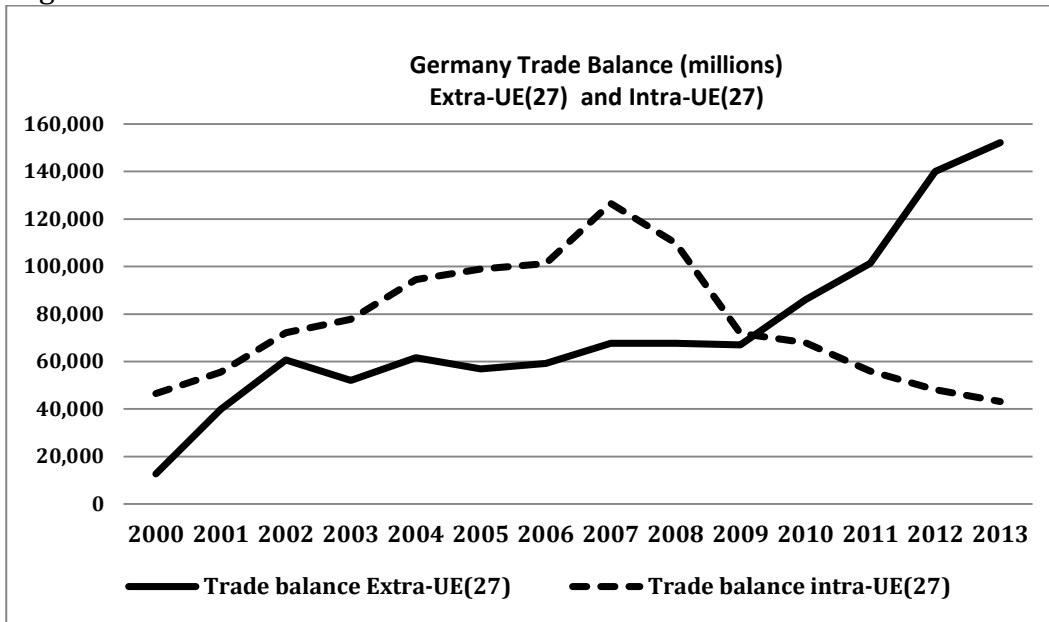
Figure 25



Source: Author's calculation from Eurostat database

Germany's economic growth in the first decade of 2000 was driven by the exports, whose share of GDP was 33% in 2000, a bit higher than in Italy, with 27%: from the 2000 to 2012 the share of export on GDP jumped to 52% in Germany and increased slightly to 30% in Italy (figure 25): a positive relationship exists between Germany's exports, as a share of GDP, and the external balance of goods and services, as a share of GDP. To explain this structural change we need to consider that over the year 2000 two fundamental events happened, with profound and lasting consequences: the onset of the European Monetary Union, in 1999, and the entry of China in the WTO in December 2011. The eruption of the Great Recession, in 2008 was the origin of a new wave of structural changes on the European economy, led by Germany, whose intra-EU(27) trade balance peaked in 2007, and then dropped from 126 billions to around 43 billions in 2013: at the same time the extra-UE(27) trade jumped from 72 billions in 2007 to 152 billion in 2013 (Figure 26 - 2013 is our estimate). The reversal of trade flows signals a tilt of the Germany exports and imports outside the European Union and helps to explain why Germany went through the European recession, together with its geographical closer countries, without the economic losses which burdened Southern European countries.

Figure 26



Source: Author's calculation from Eurostat database (2013 our estimate)

Considering the Germany's trade balance, ranked by value of the more important partners and for selected years, we can appreciate the above mentioned statement by the US Department of Treasury: United States is the country which has secured to Germany the largest and increasing trade balance since the 2000 and therefore provided a sizable share contribution to its high and growing current account surplus: France and United Kingdom follow suit with the same pattern. The Germany trade balance is also in surplus with respect to the boundary countries like Austria, Denmark, Poland and Sweden: Germany's has also close connections with The Netherlands, recording however a sizable negative deficit, mainly due to the imports of mineral fuels (19 billions), energy machinery (3 billions), iron, steel and aluminium products (3 billions). However Germany records a substantial trade surplus with the United Arab Emirates and Saudi Arabia, both totalling a trade surplus of almost 17 billions. Germany's surplus with Italy and Spain peaked in 2007, then plunging back in 2013, down to a level lower than in 2000. Regarding Asian countries, Germany records a surplus with South-Korea, Hong Kong, Singapore, India, Japan: it come as a surprise that, in spite of the sharp increase of exports to China (from 10 billions in 2000 to more than 60 billion in 2013), the trade balance has become positive only since 2011 (partly because of a decrease in imports from China). Obviously the reason is that, in the meantime, Germany's imports from China have increased simultaneously: to understand causes and consequences of this structural change we need a closer scrutiny of the pattern of trade between Germany and China. Germany's trade pattern is simultaneously intraindustry and interindustry, reflecting comparative advantages and natural endowments: standard economic theory (Krugman and Obstfeld, 2009) helps to explain the pattern of interindustry trade, between Germany, which exports to China capital-abundant products (like vehicles and pharmaceutical product), and imports from China, labor-intensive goods (like textiles and footwear). As China is continuing its growth and the internal market becomes evolutive, product differentiation grows and with it intraindustry trade, prompted by the huge size of its domestic demand. The following analysis focuses on the structure of imports by main product, trying to detect the possible effects of Germany's import growth on other European countries.

Table 5

	GERMANY'S TRADE BALANCE		
Country/Year	2013	2007	2000
UNITED STATES	51.016	38.226	22.716
FRANCE	33.607	27.010	15.570
UNITED KINGDOM	30.758	27.637	12.430
AUSTRIA	17.195	18.985	11.149
ARAB EMIRATES	8.943	5.385	1.944
CHINA	8.369	-18.873	-7.666
SAUDI ARABIA	7.579	4.423	1.598
KOREA (South)	7.533	-1.027	-1.000
SPAIN	7.527	27.199	11.060
SWEDEN	7.214	7.714	3.639
ITALY	6.213	19.601	9.602
BRAZIL	5.626	625	1.987
POLAND	4.898	11.942	2.713
DENMARK	4.832	3.325	299
HON KONG	4.214	2.703	1.896
SINGAPORE	3.890	2.451	704
INDIA	3.413	2.966	-213
JAPAN	2.185	-5.353	-10.347
RUSSIAN FEDER.	-1.329	437	-7.603
NETHERLAND	-55.237	-29.410	-21.843

Source: Author's calculation from Eurostat database (2013 our estimate)

Table 6

Products imported in Germany from China (millions euro)						
Products	2012	2007	2000	2012-2000	% total	Trade bal.
Electrical machinery, sounder	14.990	12.367	4.240	10.750	24,4	-7.053
Boilers and appliances	12.468	10.725	2.099	10.369	23,6	5.396
Articles of apparel not knitted	3.532	3.110	1.064	2.468	5,6	-3.479
Articles of apparel knitted	2798	1781	709	2.088	4,7	-2.776
Ship, boats	2.140	1.224	31	2.109	4,8	-2.119
Furniture, bedding, mattresses	2.622	1.692	601	2.021	4,6	-2.284
Footwear	1.526	923	300	1.226	2,8	-1.503
Organic chemical	1.405	780	297	1.108	2,5	-560
Toys, games, sports	2.210	3.005	1.198	1.012	2,3	-2.184
Articles of iron or steel	1.367	1.242	404	963	2,2	-233
Optical, photo, measuring	1.724	1.029	799	925	2,1	2.830
Plastic and articles	1.274	882	495	779	1,8	557
Vehicles	991	603	341	650	1,5	17.894
Other made-up textiles	780	537	235	545	1,2	-769
Miscellaneous of base metal	620	415	113	507	1,2	-301
Other	11.184	8.412	4.199	6.986	15	4.820
Total imports	61.631	48.727	17.125	44.506	100,0	5.537

Source: Author's calculation from Eurostat database

Germany's imports from China are spread on all the industries, but are also highly concentrated in few products: four products makes more than half of the imports' increase between 2012 and 2000 and the products selected represent 85% of Germany's total imports from China. Germany has a deficit trade balance for almost all the products selected, with the exception of the vehicles, optical and photographic, boiler and appliances and plastic, for which

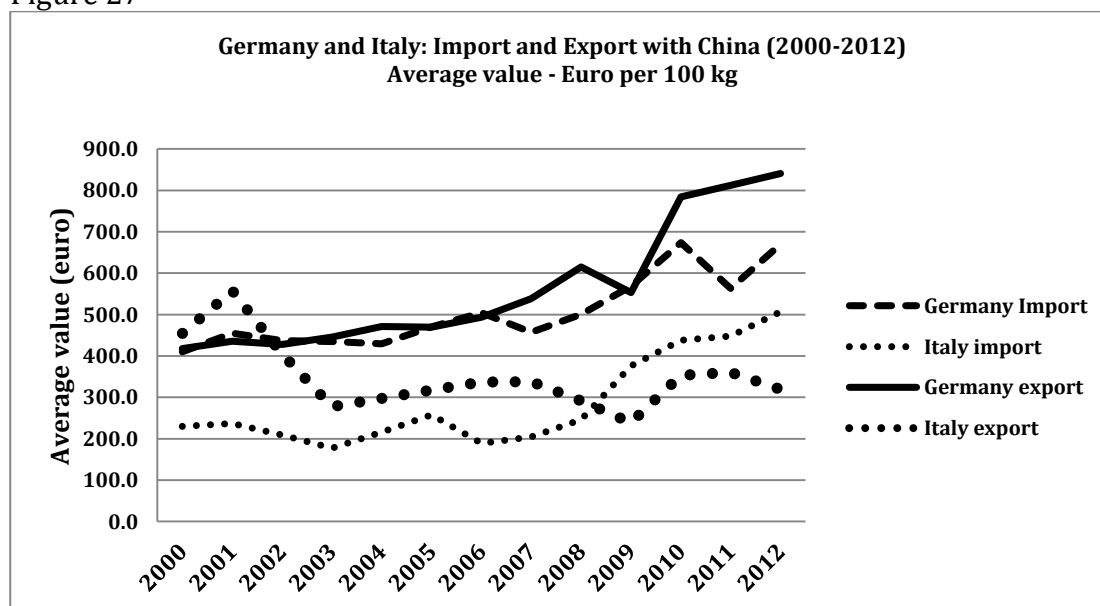
Germany records a positive surplus: the products with only a negative deficit total 17,8 billions (2012), while the products with positive surplus and miscellaneous product total 23,4 billion, for a positive (estimated) balance of 5,5 billions.

The question is whether the increased import competition, derived by the increasing imports in Germany from China, produced adverse economic effects in Europe. This is what has happened in the US, causing higher unemployment and prompting a decline in US manufacturing employment (Autor, Dorn and Hanson, 2013): in Germany import competition takes the form of a change in the global value chain, with China imports competing also with other European manufacturers, supplying the German consumer market as well as the German factories.

For the previous selection of products we compared Germany's imports from China with the Germany's imports from Italy and the US in the period 2012-2000: the results are that the corresponding US imports decreased for almost all the products, while Italy retained a positive surplus for appliances but decreased its exports to Germany for the article of apparel. For both countries there was therefore some import substitution.

The economic benefit of the increasing Germany's import-export with China has to be evaluated in relation to the global chain value and the terms of trade: we look therefore at the average value per chilogram of the imports and exports of Germany with China, comparing it with the corresponding average values of Italy's imports and exports with China. We find that the Germany's average value of exports to China has steadily increased from 2000 to 2012, while the average value of Italian exports declined from 2001 to 2003 and then remained stable. The average value of Germany's imports from China has also increased, in line with the average value of exports: since 2009 the Germany terms of trade improved while in Italy worsened along with an increase of average value of imports from China (figure 27). The question is whether this argument can provide a policy indication for economic growth, because a high average value for a product, net of imported inputs, means a high value added. Germany's trade with China is characterized by a high average value, like for the exports of vehicles and pharmaceutical products, reflecting a high value added and quality of the products exported: quality is a matter of size only if it implies a significant investment in Research and Development, while the size of China market offers ample opportunities also for smaller countries targeting diversified market segments with high value added.

Figure 27



Source: Author's calculation from Eurostat database

## Conclusions.

The Great Recession hit Europe twice: the first time through the exogenous shock of the US crisis and the second time as a consequence of the fiscal consolidation and internal devaluation policies implemented to face the Sovereign Debt Crisis. The crucial divide, which followed, is the diverging path of countries with increasing unemployment rates and countries with decreasing unemployment rates, while instead the inflation rates are uniformly converging to a worrisome low level. Half of the European population lost ground while the other half improved their standard of living: the economic divide should be removed before putting at risk the social cohesion of the European Union. Our attempt to unbundle the European crisis focuses on five key aggregates: unemployment, consumption, investment, inflation and current account. The empirical evidence supports a chain of causation which starts with the shock of fiscal consolidation and internal devaluation, which decreases domestic final consumption, prompts a fall in investment and the increases of unemployment, coupled with a drop of inflation; the falling domestic demand curtails imports and, given stable or increasing exports, improves the current account and brings it to balance. The restraint of consumption, through the fiscal consolidation and internal devaluation, has been a success in rebalancing the current account and has partially achieved the goal of reducing the public deficit. The downside is the toll of a deep economic recession and increasing unemployment, while inflation rate has fallen below 1%, sparking fears of deflation. It is well known that the Euro Area is not an optimal currency area, but internal devaluation has proved to be the problem, rather than the solution, because it is a very imperfect substitute of currency devaluation. The strength of economic ties with China and Asian countries, added to the US, helped Germany and the closer countries to go through the recession without economic losses, but tilted Germany's economic interests outside the European Union and prompted a leap of the export, as a share of GDP. However it is not clear how sustainable can be an export led pattern of growth for a country with the size of Germany, when the export of goods and services, as a share of GDP, is so higher than US, Japan and China. The crucial issue is that the Southern European countries have definitely shrunked the size of their economies and the question is how long it will take for their standard of living to return to the pre-crisis level and if this goal can be achieved without renewed imbalances.





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